THE HISTORY OF ESCULENT FISH,

WITH PLATES, DRAWN AND ENGRAVED BY

ELEAZAR ALBIN:

AND AN

ESSAY

ON THE

BREEDING OF FISH,

AND THE

CONSTRUCTION OF FISH-PONDS,

BY THE HONOURABLE

ROGER NORTH.

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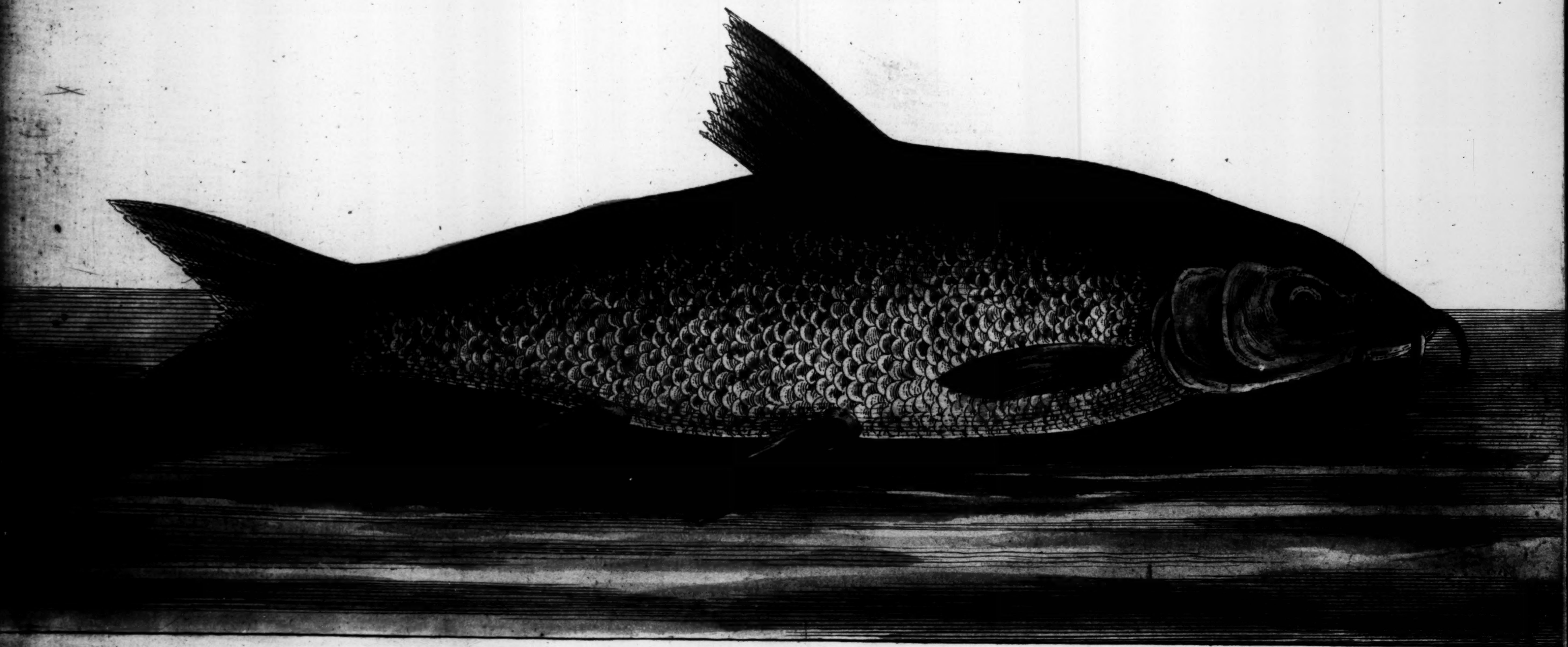

Barbus: Barbeau. A Barbell.

Elizabeth Albin Depictio June 30 1736.

The BARBEL,

CALLED, in Icthyology, Barbus, but by ſome writers in Natural Hiſtory, Muſtus Stuviatitis, and is a ſpecies of the Cyprinus. The Barbel is a fiſh commonly known and ſo called from the barb or beard under its chaps or noſe, and is of the leather-mouthed kind.

It is but a moderate taſted fiſh, and the female is leſs eſteemed for the table than the male; but neither of them is much valued: the worſt ſeaſon for them is in April. They love to be among the weirs, where there is a hard gravelly bottom, and generally ſwim together in large ſhoals.

In ſummer, they frequent the ſtrongeſt and ſwifteſt currents of water, as under deep bridges, weirs, and the like places, and are apt to get in among the piles, weeds, and other ſhelter; but in winter, they retire into the deepeſt and ſtilleſt waters; the beſt ſeaſon for angling for this fiſh, is from May to Auguſt, and the time for taking them is very early in the morning, or late in the evening. The place ſhould be baited with chopped worms ſome time before; and no bait is ſo good for the hook as the ſpawn of fiſh, particularly the Salmon: in defect of theſe, lob-worms will do; but they muſt be very clean and nice, and the hook carefully covered, otherwiſe he will not touch them. Old cheeſe ſteeped in honey alſo is a fine bait.

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CARP.

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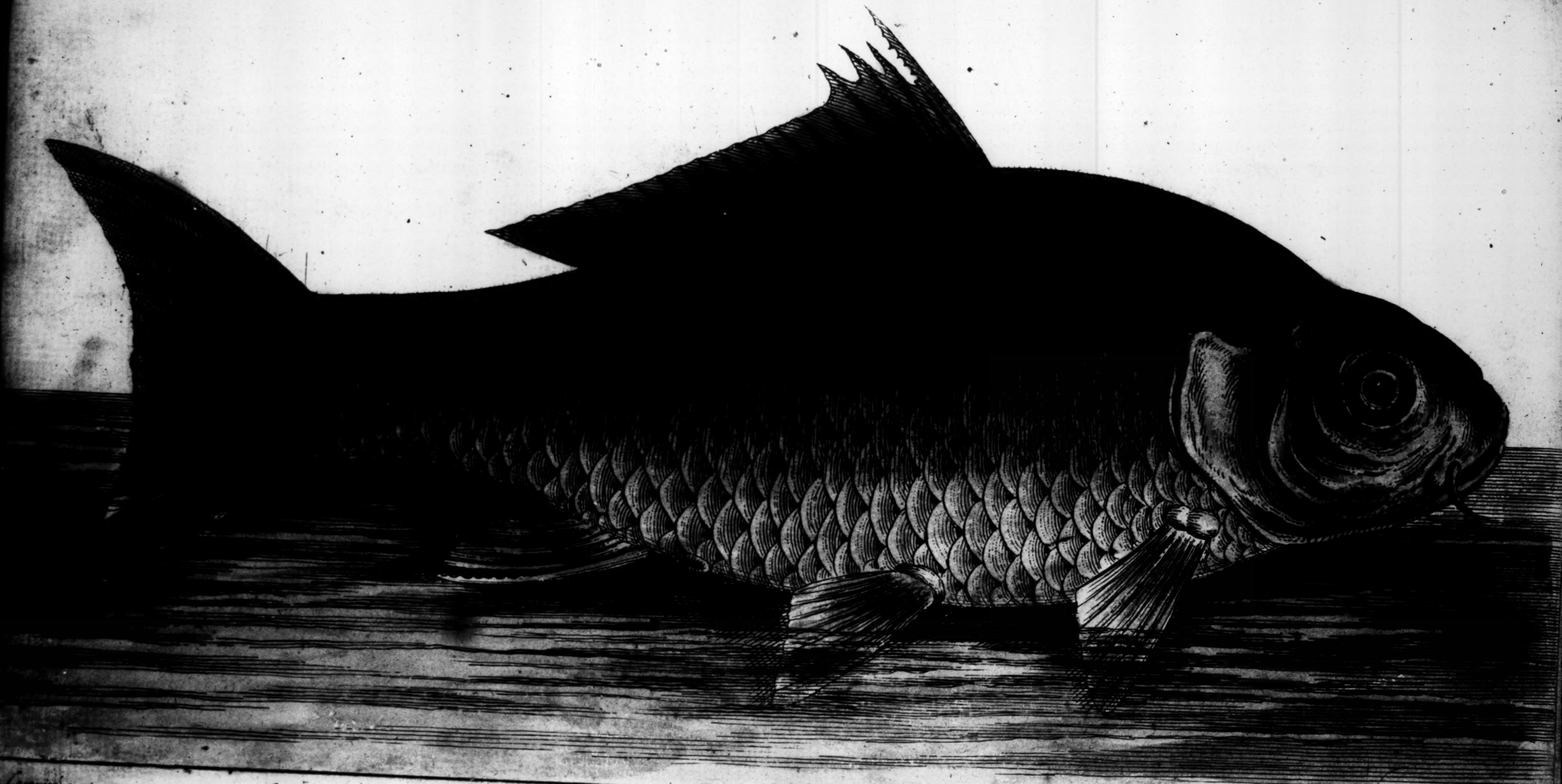

Cyprinus. *Carpe.* *The Carp.* *Eleazar Albin delineavit Decem. 12. 1735.*

CARP.

LEONARD MARCHAL firſt brought this fiſh into England about 1514: it is the moſt valuable of all kinds of fiſh for ſtocking ponds, becauſe of its quick growth and great increaſe. If the feeding and breeding of this fiſh were more underſtood and practiſed, the advantages reſulting would be very great; and a fiſh pond would become as valuable an article as a garden. The gentleman who has land in his own hands, may, beſides furniſhing his own table and ſupplying his friends, become a ſource of much profit in money, and very conſiderable advantage to his lands at the ſame time, ſo as to make it produce more than by any other employment whatever. The ſale of Carp makes a conſiderable part of the revenue of the principal nobility and gentry in Pruſſia, Pomerania, Brandenburg, Saxony, Mecklenburgh, Bohemia, and Holſtein. Particular attention ſhould be paid to the ſoil, water, and ſituation of a Carp pond; the beſt kind are thoſe which are ſurrounded by the fineſt paſture, or corn fields, with a rich black mould, and ſoft ſprings on the ſpot, or other running water, that is neither too cold, or impregnated with acid, calcareous, ſelenetic, or other ſeraneous, mineral particles. The water may be ſoftened by expoſing it to the air or ſun in a reſervoir, or by forming an open channel for it ſome diſtance from the pond; they ſhould be expoſed to the influence of the ſun, and ſheltered from the eaſtern and northerly winds.

By experience, it is found convenient to have three kinds of ponds for Carp, viz. the ſpawning pond, the nurſery, and the main pond: the firſt pond muſt be cleared of all other kind of fiſh, eſpecially thoſe of the rapacious kind, ſuch as the perch, pike, eel, and trout; the water beetle, and alſo of the newts or lizards. It ſhould be expoſed to ſun and air, and be ſupplied with ſoft water. A pond of one acre requires three or four male Carp, and ſix or eight female ones; and in the ſame proportion for each additional acre. The beſt Carp for breeding are thoſe of five, ſix, or ſeven years old, in good health, with full ſcale, and fine full eyes, and a long body, without any blemiſh or wound: the pond ſhould be ſtocked in a fine calm day, towards the end of March, or beginning of April. Carp ſpawn in May, June, or July, according to the warmth of the ſeaſon; and for this purpoſe, they ſwim to a warm, ſhady, well-ſheltered place, where they gently rub their bodies againſt the ſandy ground, graſs, or oſiers; and by this preſſure the ſpawn iſſues out at the ſpawning ſeaſon. All ſorts of fowl ſhould be kept from the ponds: the young fry is hatched from the ſpawn by the genial influence of the ſun, and ſhould be left in this pond through the whole ſummer, and even the next winter, provided the pond is deep enough to prevent their ſuffocation during a hard winter; then the breeders and the fry are put into ponds ſafer for their wintering.

The ſecond kind of ponds are the nurſeries; the young fiſh ſhould be moved, in a fine calm day, into this pond, in the months of March or April: a thouſand or twelve hundred of this fry may be well accommodated in a pond of an acre. When they are firſt put in, they ſhould be well watched, and driven from the ſides of the pond, leſt they become the prey of rapacious birds. In two ſummers, they will grow as much as to weigh four, five, or even ſix pounds, and be fleſhy and well taſted.

The main ponds are to put thoſe into that meaſure a foot, head and tail incluſive; every ſquare of fifteen feet is ſufficient for one Carp: their growth depends on their room, and the quantity of food allowed them.

The beſt ſeaſons for ſtocking the main ponds are ſpring and autumn. Carp grow for many years, and become of conſiderable ſize and weight. Mr. Foſter mentions ſeeing in Pruſſia two or three hundred Carps of two and three feet in length, and one five feet long, and twenty-five pounds weight; it was ſuppoſed to be about ſixty years old: Geſner mentions one that was an hundred years old. Theſe were tame, and would come to the ſide of the pond to be fed, and ſwallowed with eaſe a piece of bread half the ſize of a halfpenny loaf. Ponds ſhould be well ſupplied with water during the winter; and when they are covered with ice, holes ſhould be opened every day for the admiſſion of freſh air, through want of which, Carps frequently periſh. Carp are ſometimes fed, during the colder ſeaſon, in a cellar: the fiſh is wrapped up in a quantity of wet moſs laid on a piece of a net, and then laid in to a purſe; but in ſuch a manner, however, to admit of the fiſh breathing: the net is then plunged into water, and hung up to the ceiling of the cellar: the dipping muſt at firſt be repeated every three or four hours, but, afterwards, it need be plunged into the water only once in ſix or ſeven hours: bread ſoaked in milk is ſometimes given him in ſmall quantities; in a ſhort time, the fiſh will bear more, and grow fat by this treatment. Many have been kept alive, breathing nothing but air in this way, ſeveral ſucceſſive days.

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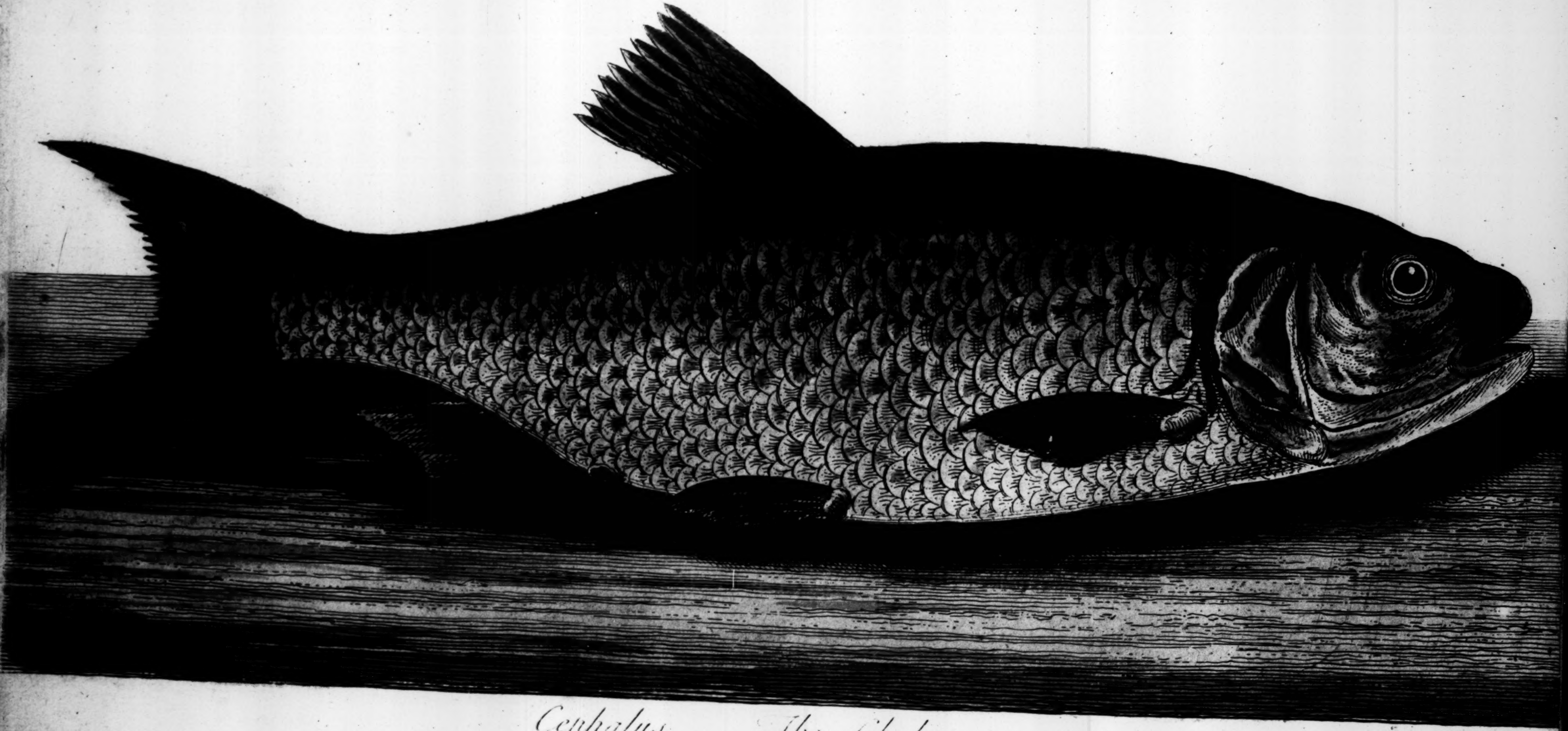

Cephalus. *The Chub*

[illegible] Albin delin. 17[illegible]

The CHUB

Is, according to the Artedian and Linnæan ſyſtem, a ſpecies of Cyprinus, and is called by the French the Vilian and Teſtard, and was called by the ancient Romans Squalus. The reſorts of this fiſh are eaſily found; being generally holes over-ſhaded by trees; and on a hot day, they may be ſeen in great numbers, floating almoſt on the ſurface of the water. For the table they are very poor fiſh, full of bones. They afford much entertainment to the angler, and are eaſily caught. The beſt manner of fiſhing for them is thus: prepare a very ſtrong rod of ſufficient length; fix a graſhopper to the hook; place yourſelf ſo as not to be perceived by the fiſh, and drop in the bait about two feet from the place where a Chub lies; if he does not ſee the angler, he rarely fails biting, and is taken directly; but he is ſo ſtrong a fiſh, that he ſhould be taken out carefully, after a great deal of play, otherwiſe the tackle will be in danger; a beetle, or any large fly, will anſwer the purpoſe in the place of a graſhopper; and if none of them are to be had, the method of fiſhing muſt be altered, and the line be long enough for fiſhing at the bottom.

In March and April, this fiſh is to be caught with red worms; in June and July, with worms, ſnails, and cherries;

but in Auguſt and September, the proper bait is good cheeſe, pounded in a mortar with ſome ſaffron and a little butter. Some make paſte of cheeſe and Venice turpentine for the Chub in winter, at which ſeaſon the fiſh is better than at any other; the bones are leſs troubleſome in this ſeaſon, and the fleſh more firm and better taſted. The roe is alſo generally well flavoured. The angler muſt keep his bait for this fiſh at the bottom in cold weather, and near the top in hot. The fiſh will bite eaſily.

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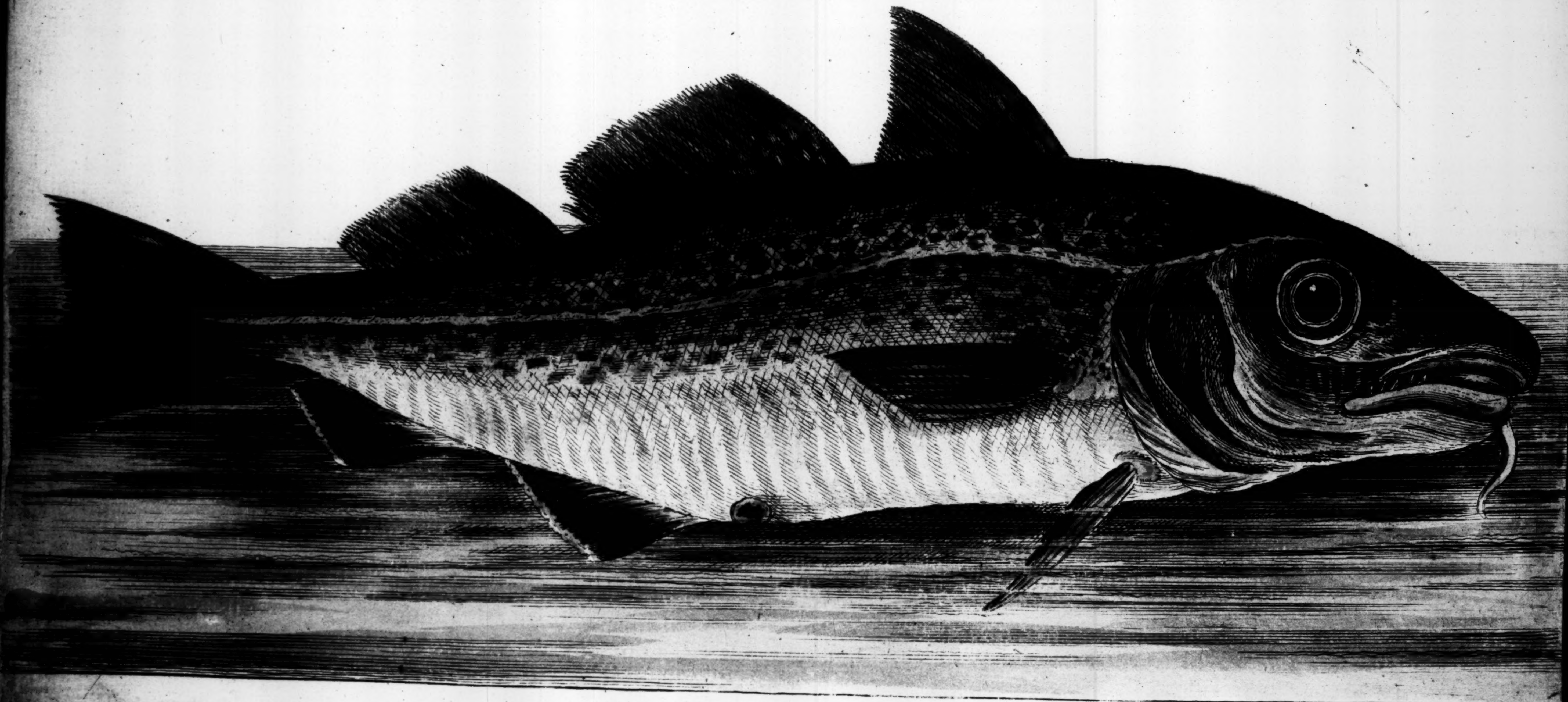
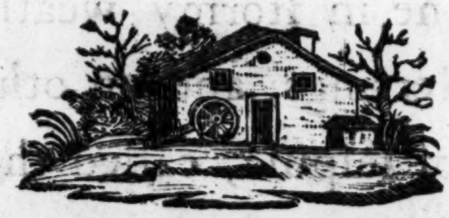


Asellus Major *The Cod-fish.* E. Albin Delin: March 29. 1739.

The COD FISH

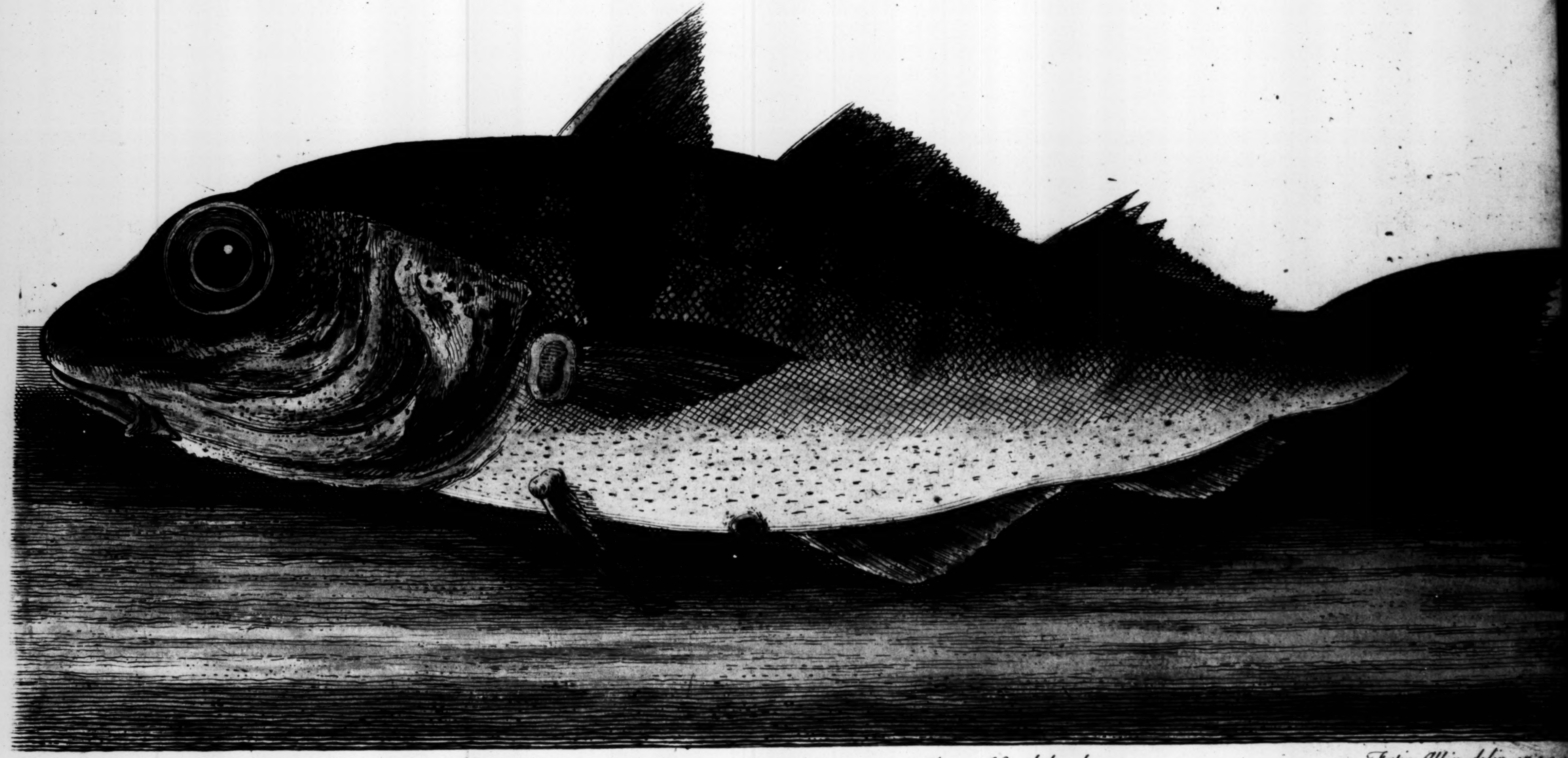
Is the largeſt of the genus Aſelli, by authors called Aſellus Maximus, and ſometimes Aſellus Varius, ſive Striatus. It is diſtinguiſhed from other fiſhes of the ſame kind by the following marks. Its colour on the back and ſides is a duſky olive, intermixed with yellow ſpots; a white belly, with a white line running along each ſide from the gills to the tail, which is curved at the abdomen, but ſtraight elſewhere. It has very ſmall ſcales, which adhere firmly to the ſkin; its eyes are large; a ſingle beard hangs at the angle of its lower jaw, which is ſhort, ſeldom longer than one's finger. It has a broad tongue, and ſeveral rows of teeth, one being much longer than the reſt. Among theſe there are ſome moveable teeth, as in the Pike; and in the palate, near the orifice of the ſtomach, and near the gills, it has ſmall cluſters of teeth; it has three back-fins, two at the gills, two at the breaſt, and two at the anus; and the tail is plain.



The HADDOCK

IS, according to the Artedian ſyſtem, of the genus of Gadi. It is called by Salvian the Aſellus Major, or Greater Aſellus, and by Turner and Willoughby the Orus, or Aſinus of the Ancients. Charlton tells us, that it was the Callaris Galeris, or Galaxis, of the old Romans, mentioned by Pliny; but Artedi has ſome doubt about that. It is likewiſe called by Artedi the Gadus; with a bearded mouth, three fins on the back, a whitiſh body, with the upper jaw longeſt; the tail a little forked. Large Haddocks begin to be in roe about the middle of November, and continue ſo till the end of January; from that time till May, their tails grow thin, and they are out of ſeaſon.

The ſmall ones are very good from May to February; and thoſe which are not old enough to breed in February, March, and April. It is ſaid by fiſhermen, that in rough weather they hide themſelves in the ſand at the bottom of the ſea, and among the ooze, and ſhelter themſelves till the ſtorm is over, becauſe they take none in ſtormy weather. They live in the ſummer on young Herrings, and on other young fiſh; and in winter, on a ſpecies of ſeſpula, called the ſtone-coated Worm, and by the fiſhermen, Haddock-meat. The great ſhoals of



Aſellus Minor. The Haddock

Fortin Albin delin. 1740

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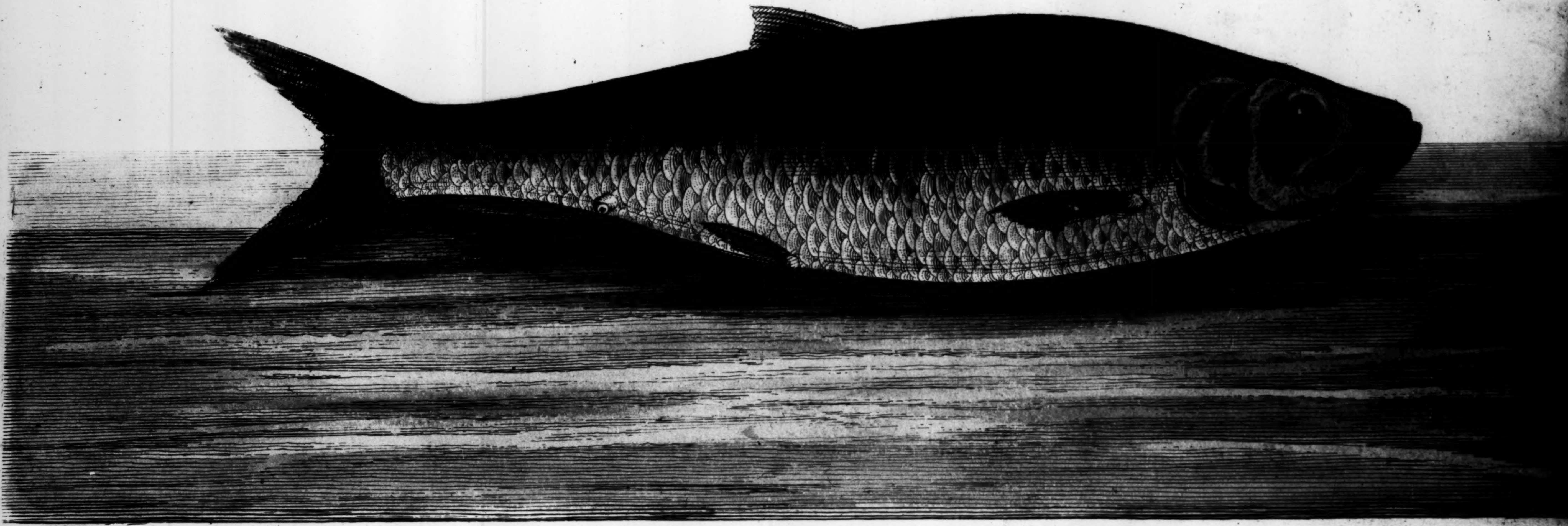
Haddocks come periodically on the coaſt of Yorkſhire. The large ones quit the coaſt as ſoon as they get out of ſeaſon, and leave behind them a number of ſmall ones. They are ſaid to viſit the coaſts of Hamburgh and Jutland in the ſummer. There is a large black ſpot on each ſide of the Haddock, aſcribed by ſuperſtition to the mark which St. Peter's thumb made, when he took the tribute money out of the mouth of a ſpecies of this fiſh.

The HERRING.

HARENGUS, in Icthyology, a ſpecies of the Clopea. Its Harengi forms are theſe: its length is generally ſeven or eight inches, though it ſometimes grows to a foot; its head is flatted, and its mouth placed upwards: it has a green back and ſides mingled with blue, and a belly of a ſilver caſt; its ſcales are large and round. It is not ſpotted at all, and its belly is carinated; the ridge is quite ſmooth, and not at all ſerrated; its ſide lines are ſmall, and ſcarce diſtinguiſhable; the lower jaw is ſtronger and more prominent than the upper; its gills are four innumber, as in other fiſhes; their fibres very long, and open remarkably wide; ſo that this fiſh dies almoſt as ſoon as taken out of the water: it has one fin on its back, which conſiſts of about ſeventeen rays, and is between the head and the tail; the two ventral fins have nine rays, the pectoral ſeventeen, and the anal fourteen ; the tail is forked. The name Herring, takes its derivation from the German *Heer*, an army, which expreſſes their number when they migrate our ſeas. Herrings are found in vaſt quantities from the higheſt northern latitudes as low as the northern coaſt in France; on the coaſt of America large ſhoals of them are to be met with as low as Carolina. In Kamtſchatka they are alſo



Halec. The Herring. E. Albin Del: 1739.

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alſo to be found, and very poſſibly in Japan: their winter rendezvous is within the arctic circle; they retire there after ſpawning, and wherever they can meet with inſect food. They are in full roe at the end of June, and in perfection till the commencement of winter, when they begin to depoſit their ſpawn.

PRESERVED HERRINGS.

Various are the names given to them, and according as they are ordered: as,

1ſt. Sea-Sticks are what are caught all the fiſhing ſeaſon, and but once packed. A barrel of theſe contains ſix or eight hundred; according to law, eight barrels go to the hundred. A hundred of Herrings is one hundred and twenty; a laſt is ten thouſand; and they generally reckon fourteen barrels to the laſt.

2d. Repacked Herrings are Herrings repacked on ſhore. Seventeen barrels of Sea-Sticks make from twelve to fourteen barrels of repacked Herrings. They repack them in the following manner: take out the Herrings, waſh them in their own pickle, and lay them orderly in a freſh barrel: they have no ſalt put to them; but after being cloſe packed, have a ſworn copper put over them with the pickle when the barrel is half full: the pickle is brine; ſo ſtrong that the herring may ſwim in it.

3d. SUMMERS are what are caught by the Dutch Chaſers, or Divers, from June till the middle of July. They are ſold in Sea-Sticks; they will not endure repacking: they go one with another full and ſhotten; but the repacked Herrings are ſorted.

4th. The SICK and SHOTTEN HERRINGS by themſelves; the barrel ſhould be marked.

5th. CRUSS HERRINGS are what are caught after the middle of September; they are cured with ſalt upon ſalt: all theſe are full Herrings.

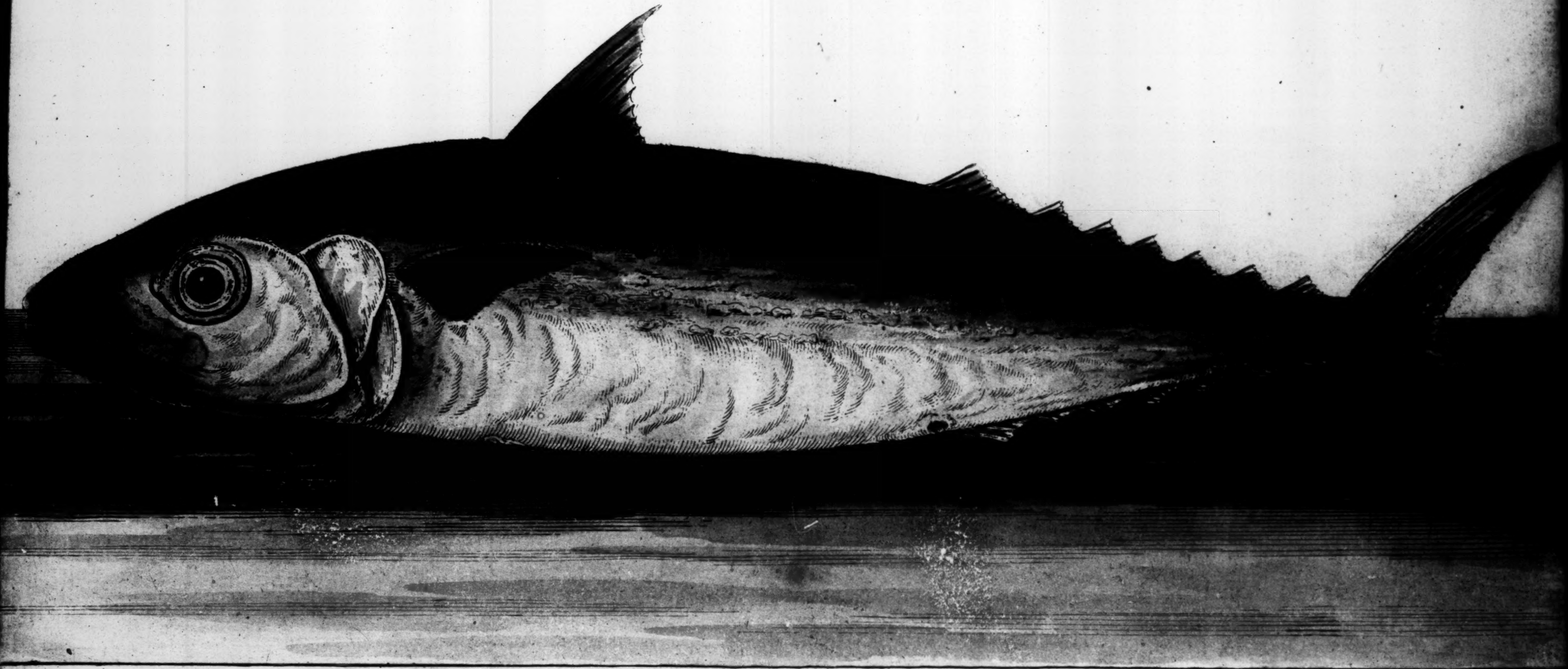
There is likewiſe another ſort, called COWED HERRINGS. Theſe ſerve to make Red Herrings from September to October; they ſhould be carried on ſhore within a week after they are taken; they are roed in ſalt, but never gipped; thoſe which they make Red Herrings of, are waſhed in freſh water previous to their being hung up in the Herring-Houſes, generally known by the appellation of Herring-Hangs.

Then followeth the manner of ſalting Herrings. When the fiſhes are taken out of the nets and put into the warbacks which ſtand on the ſide of the veſſel, one fills the gipper's baſkets. The gippers, after having cut their throats and taken out their guts, proceed to ſort them. When the gipped are put into the baſket, one man takes it to the rowerback, wherein there is ſalt; one ſtirs them about in the ſalt, whilſt another takes them from him, and carries them in baſkets to the packers. Each barrel is packed by four men, who lay the Herrings one by one in a very even manner; which barrel being full, another man takes it from them. The barrel is uſually left to ſtand open for a day or two, to diſſolve the ſalt; afterwards it is filled up, and the barrel is headed. Obſerve, that the pickle be ſtrong enough to ſuſtain the fiſh; otherwiſe they will decay in it.

The MACKAREL.

A VERY common ſea fiſh of the Schomber kind. Its noſe is ſharp pointed and tapered; its eyes large; and both its jaws of the ſame length: the teeth are ſmall, but very numerous; the body compreſſed on the ſides; towards the tail, it is rather ſlender, and ſomewhat angular. The firſt dorſal fin is placed a little behind the pectoral fin; it is triangular, and has nine or ten ſtiff rays; the ſecond has twelve ſoft rays, and lies at a diſtance from the other; the pectoral has twenty, and the ventral ſix rays: at the baſe of the annal fin, is a long ſpine. Betwixt the laſt dorſal and the tail, are five ſmall fins; the ſame number, likewiſe, betwixt the anal and the tail. The tail is broad and ſemilunar; the colour of the back and ſides above the lateral line is beautiful green, variegated with black lines pointing downwards; beneath the line, the belly is of a beautiful ſilvery colour. The eyes of the Mackarel are almoſt covered with a white film, which grows in winter, during which time they are nearly blind: they caſt it in the beginning of ſummer.

It is in high eſtimation amongſt the Romans, becauſe it furniſhed the precious garum.



combrus . Maquereau . a Mackarel . Eleazar Albin delinavit July 21. 1735.

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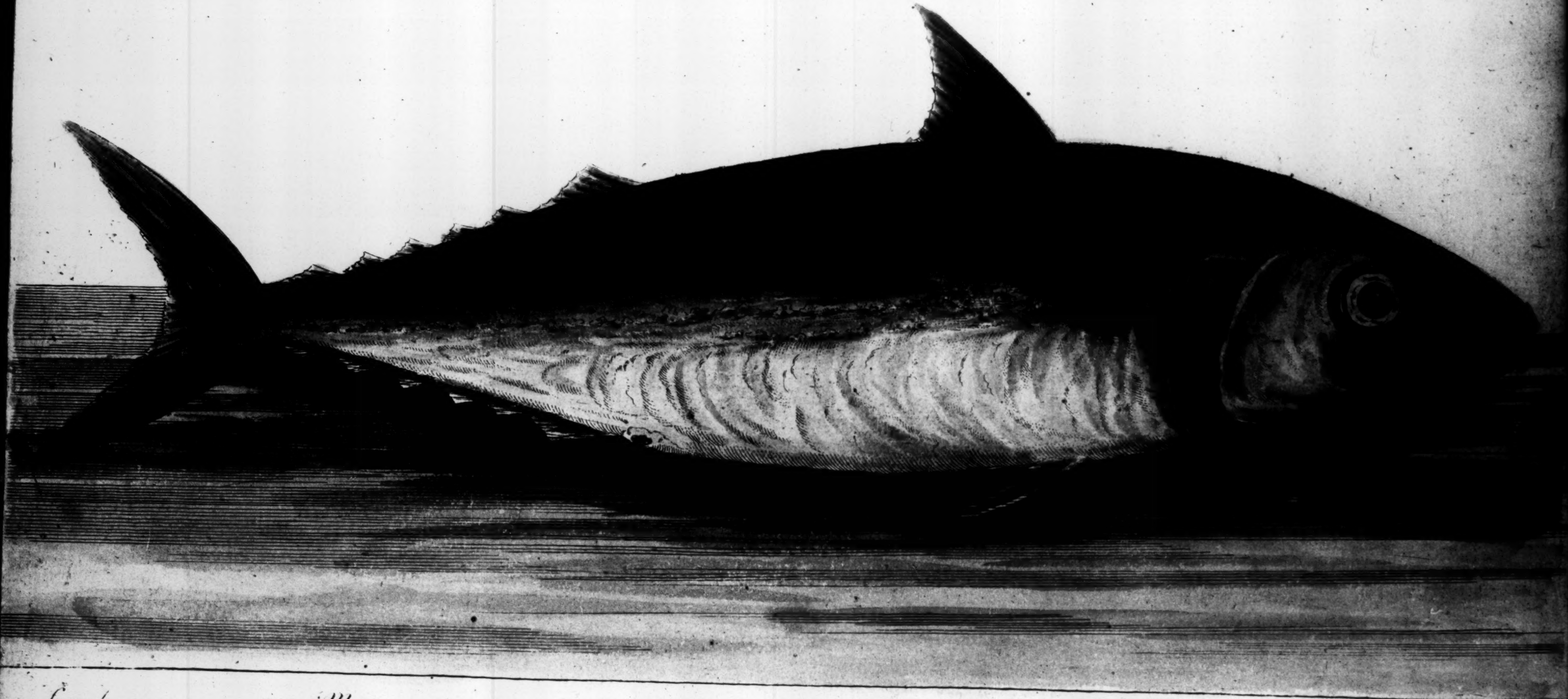

Scombrus. Maquereau. a Mackarel. Eleaz: Albin del: May 3. 1739.

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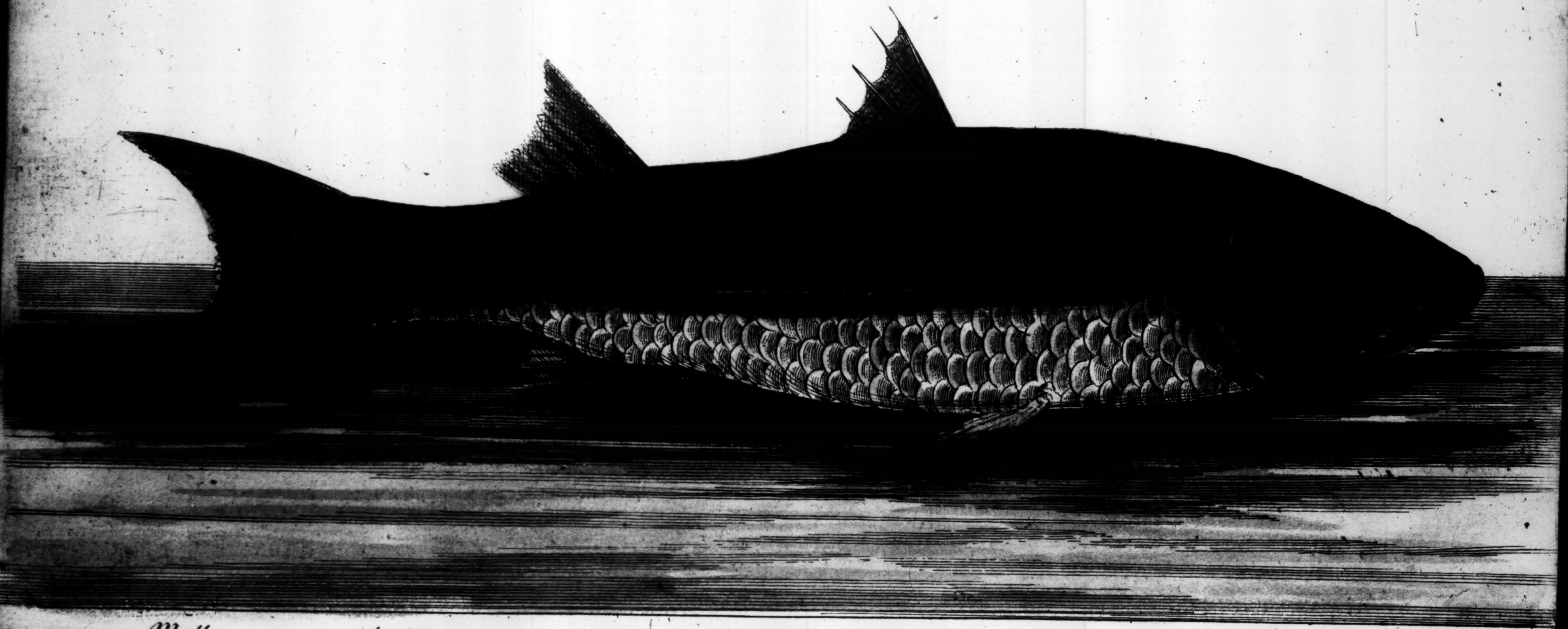

Mullus. *the Mullet.* *Eleaz. Albin Delin. 1739.*

The MULLET,

IS a name given indeterminately to fiſh of ſeveral kinds; but the true meaning of the word is the ſame with that of the Mugil, or Cephalus. The characters of the Mugil are theſe. The branchioſtege membrane on each ſide contains ſix crooked bones; the upper one being the broadeſt, and hid under the gills; only five are diſcernible; the ſcales are large, and cover the head and the opercula of the gills, as well as the body of the fiſh. The head is depreſſed in the anterior part; the body oblong and compreſſed. According to theſe diſtinctions, there is only one ſpecies of Mugil, namely, the Mugil of Ovid and the Ancients. It reſembles the Thymallus in its external figure; its jaws are tender and thin, and have no teeth in them; the tail is forked. The Linnæan ſyſtem reckons two ſpecies; viz. the Cephalus and Albula.

Three or four different ſpecies of the Mugil have been deſcribed by Rondeletius and others; but their difference ſeems to ariſe merely from age, place, and the like accidents.

The noſe is ſharp, the belly bowed; the head plain and flatted; the ſcales are very large, and cover the body entirely. The back is of a duſky blue, or greeniſh-brown colour; the belly white, and the ſides variegated, from the head to the

tail,

tail, with green and black lines; its tongue is rather rough; it has no teeth. It preys upon no fiſh, and is therefore ſuppoſed to feed on weeds. At certain times it comes up the river, but it is generally caught at ſea.

The Mullet is a very good taſted fiſh; we make tobago of its ſpawn.

Mullets are to be found chiefly on the ſandy coaſts; particularly where there are influxes of freſh water. They come in great ſhoals; and they keep rooting the mud like hogs, and leave their trace in the form of large round holes.

They are very cunning; and when ſurrounded with a net, the whole ſhoal frequently eſcape by leaping over it; for if one takes the lead, the others are ſure to follow.

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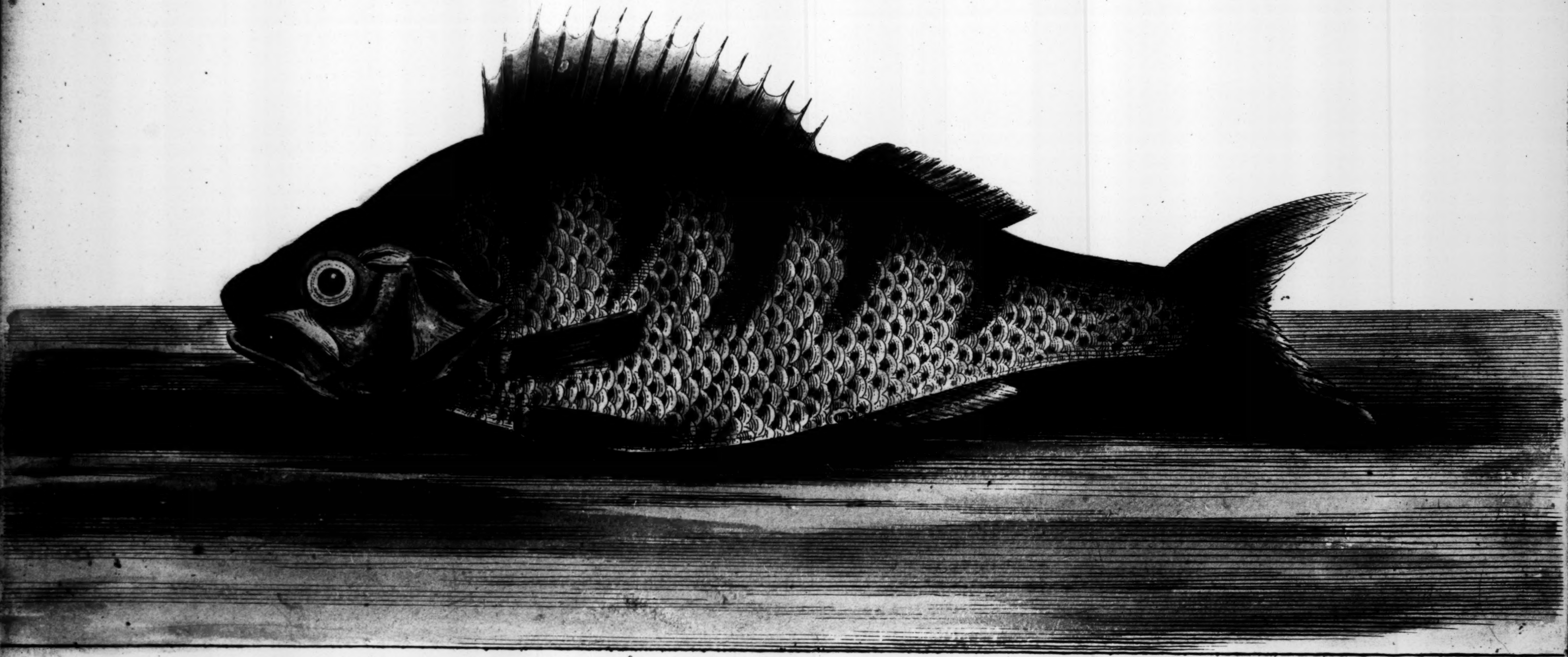

Perca. Perche. A Pearch.

Eleazar Albin Del. July 8. 1736.

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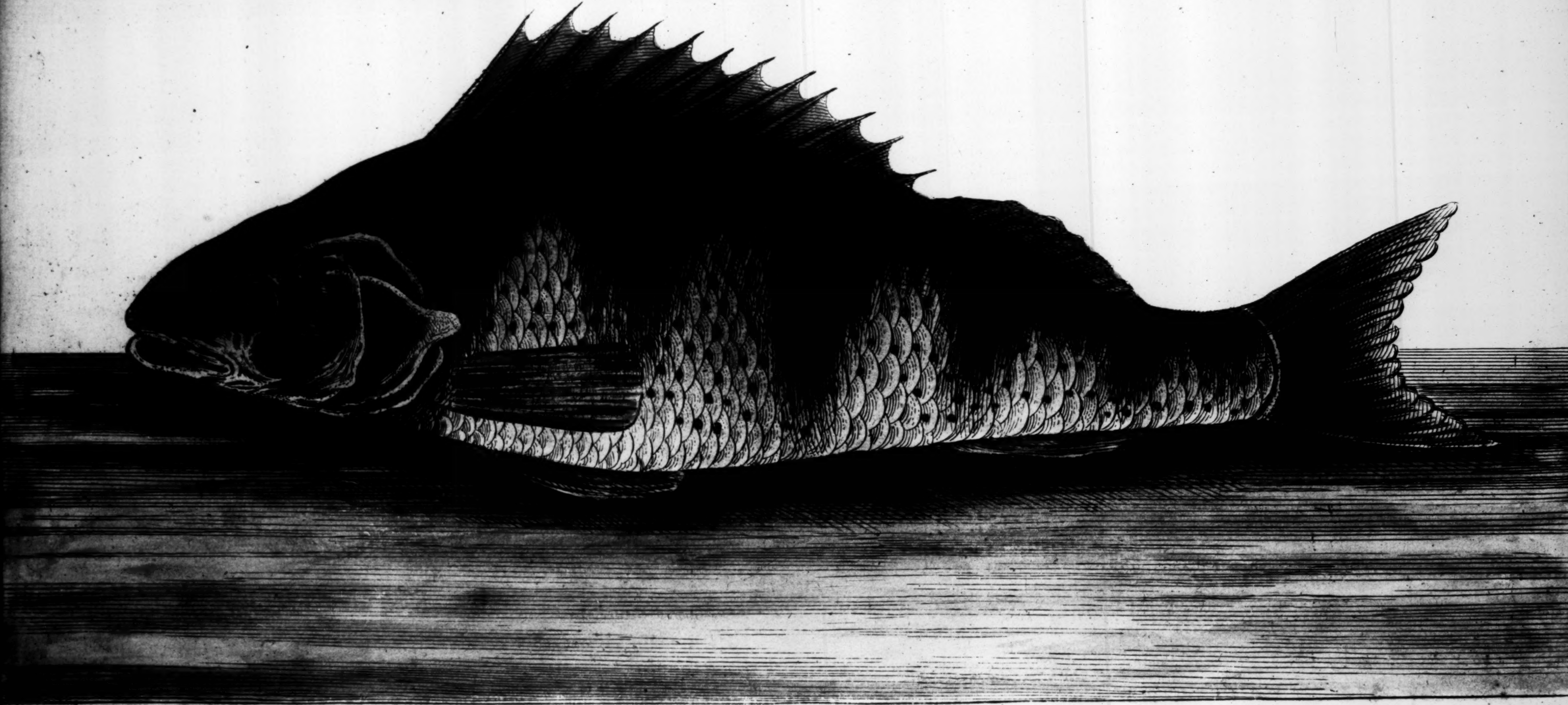


The Pearch from the River Rhine.

Eleaz. Albin del: May 1 1739.

The PEARCH, *or* PERCH,

Is a genus of fiſh of the order of Thoracci; the characters of theſe are, that the membrane of the gills has ſeven bones, and the back has one or two fins; the firſt ſpiny, and the ſecond ſoft: the body is covered with rough ſcales; the edges of the gill-covers are ſcaly and ſerrated. Linnæus enumerates thirty-ſix ſpecies; this fiſh is variegated with black ſpots.

There is a ſtrange variety of Pearch; ſome of which are quite hunched; and the backbone, near to the tail, very much diſtorted: in colour and other reſpects, it is ſimilar to the common kind.

The beſt time for their biting is betwixt ſpring and ſummer, as at that time they are very greedy; and the angler, with good management, may take all that are in the hole, at one ſtanding, if there were ever ſo many. The Pearch will bite all day long, if it be cloudy; but the beſt time is from eight till ten in the morning, and from three till ſix in the afternoon. It is very abſtemious in the winter, and will ſeldom bite; if it does at all, it is in the middle of the day. All fiſh bite beſt at this time of the day in that ſeaſon.

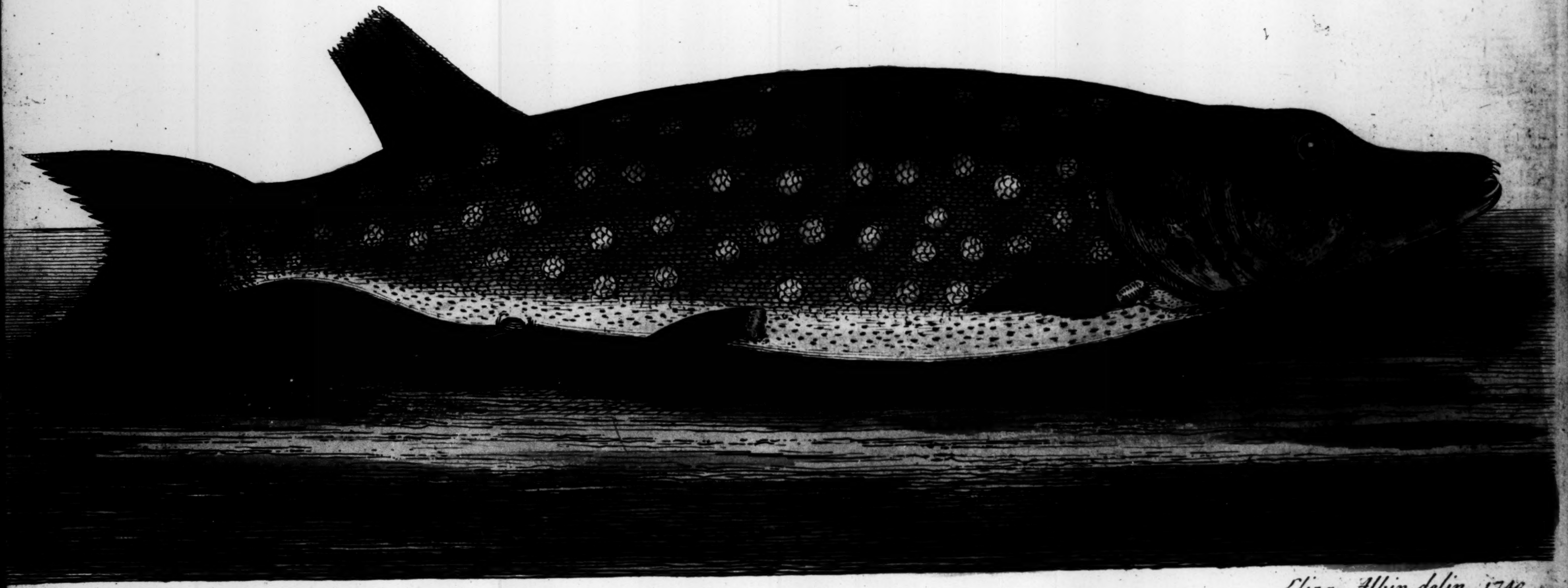
The PIKE

IS the Lucius Eſox of Linnæus. It has a very flat head; the upper jaw is broad, and ſhorter than the lower, which turns up a little at the end; the body is long, ſlender, and compreſſed ſideways; the teeth are very ſharp, diſpoſed only in the front of the upper jaw, but in both ſides of the lower; ſometimes in the roof of the mouth, and frequently in the tongue.

The eyes are ſmall, and the ſlit of the mouth very wide; the dorſal fin is placed very low on the back, and conſiſts of twenty-one rays; the pectoral of fifteen, the ventral of eleven, and the anal, of eighteen; the tail is bifurcated.

They are to be found in moſt of the lakes in Europe. Lapland produces very large ones, ſome eight feet long; they are dried there, and exported for ſale.

The Pike was introduced into England in the reign of Henry VIII. in 1537, when a Pike was ſold for double the price of a houſe lamb in February. Beſides its uſual food, fiſh and frogs, it devours water-rats and young ducks. It is remarkable for its longevity: we read of one that lived till ninety years old, and of another that was no leſs than two hundred and ſeventy years old.



Lucius . The Pike or Jack

Eliza. Albin delin. 1740

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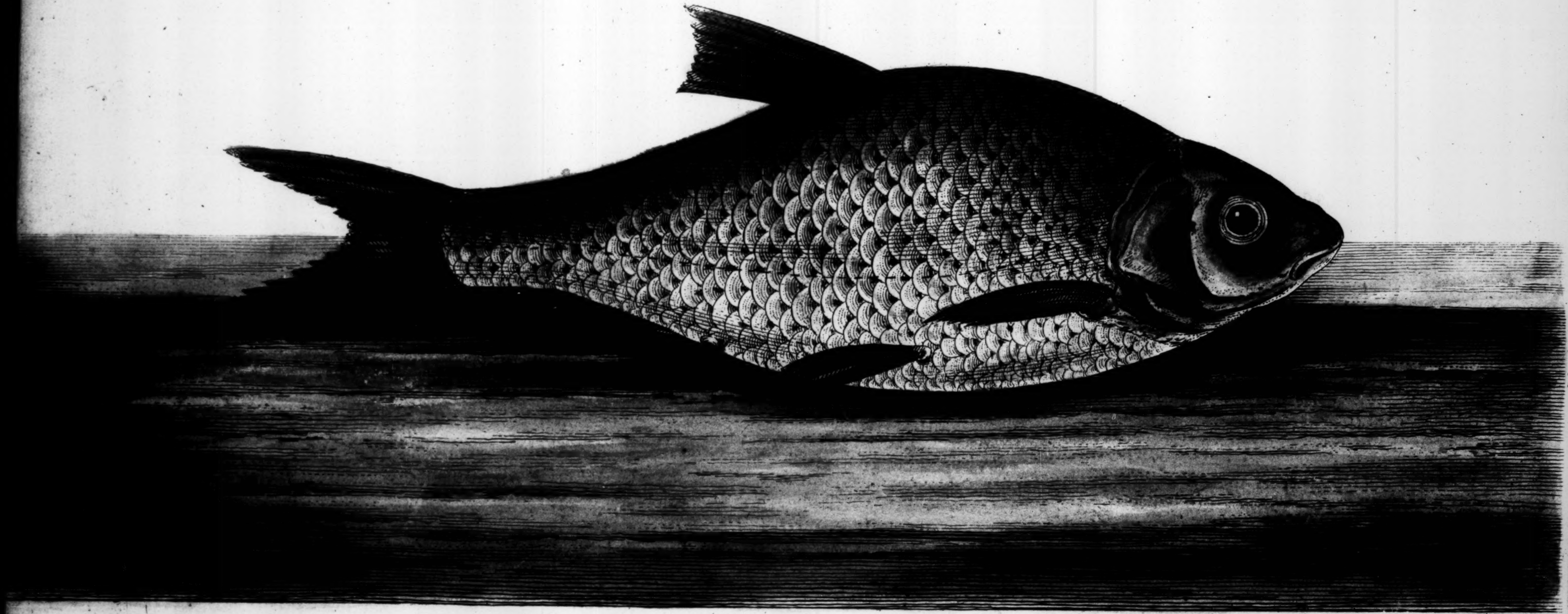


Rubellio The Roach. E. Albin Del: 1739.

The ROACH

Is the Engliſh name of a very common fiſh, called by ſome authors the Rutilius and Rubiculus, and by others the Rubellio. It is a ſpecies of the Cyprinus, according to the new ſyſtem of Artedi, and the Cyprinus Rutilius of Linnæus. It has been looked upon (though without much reaſon) remarkable for its livelineſs and vivacity, from which comes the proverb "ſound as a Roach." In ſome parts of the world, this fiſh will only live in ſtanding waters: it thrives very much in ponds and deep, ſtill rivers: it is very remarkable for its progeny; a pond being ſooner ſtocked with this fiſh than any other.

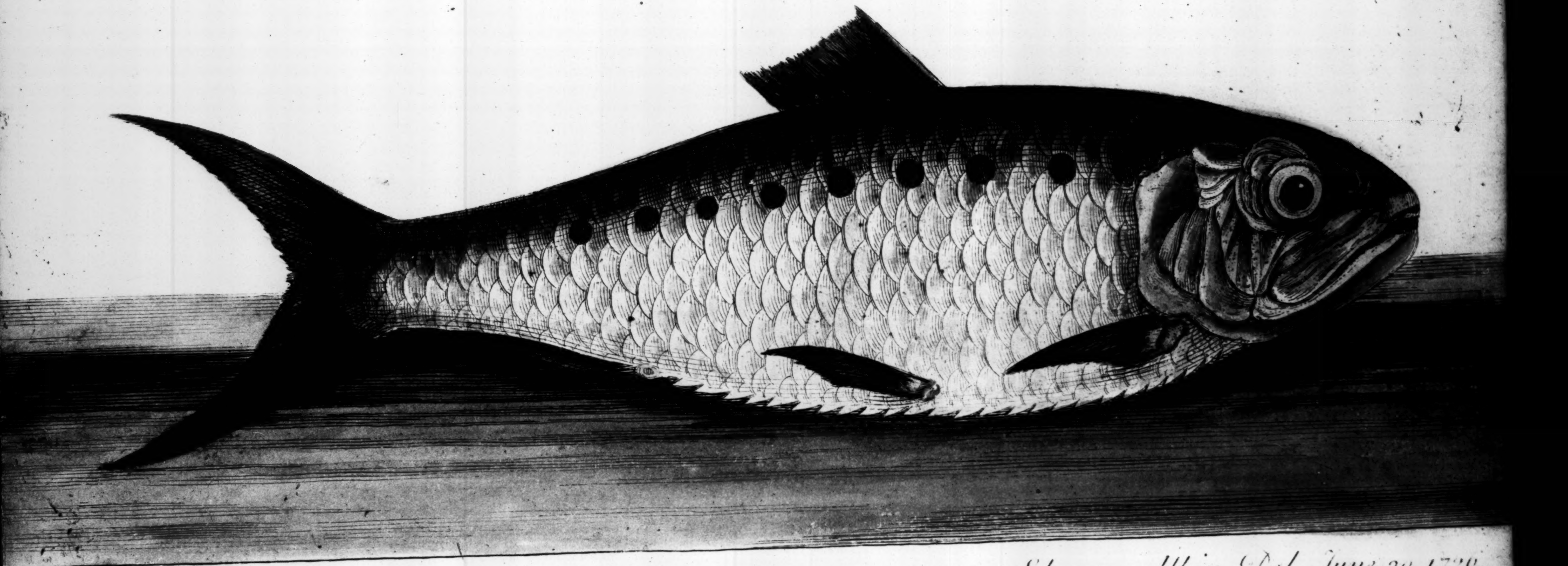
The

The SHAD

IS the name of a ſea fiſh of the Herring kind: it is alſo called the Mother of Herrings; by ſome authors Clupea and Triſſa; by the Ancients Trechis, or Trichias; and the Clupea Aloſa of Linnæus. In its general form, it very much reſembles the Herring; only it is flatter and broader, and grows to a cubit long and four inches broad. The back is convex and rather ſharp; the head ſloping conſiderably from it. The body grows gradually leſs to the tail from thence. The lower jaw is rather longer than the upper; the teeth very minute. The dorſal fin is ſmall, and placed very near the center: the middle rays are the longeſt. The pectoral and ventral fins are ſmall; the belly very ſharp; the tail forked: the body is of a duſky blue. Above the gills is a line of black ſpots, which mark the upper part of the back on each ſide. The number of theſe ſpots is different in different fiſh, from four to ten.

It is very common in many of our ſeas, and in ſome of our rivers which lie near the ſea. They run up there in great numbers, and are then very fat; they afterwards become lean, and go down to the ſea again. They uſually ſwim in large ſhoals together.

The Shad is in higher perfection in the Severn than in any other



upeo: Halachie. A Shad.

Eleazar. Albin Del. June 30. 1730.

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other river in Great Britain. It appears there in May, and in very warm ſeaſons, in April; it continues about two months. At its firſt appearance, it is eſteemed a very delicate fiſh; eſpecially at Glouceſter, where it ſells dearer than Salmon. The London fiſhmongers diſtinguiſh it from that of the Thames by the French name of Aloſe. Whether they ſpawn in the Severn and Wye, is not determined, as their fry has not yet been aſcertained. The old fiſh come from the ſea in full roe.

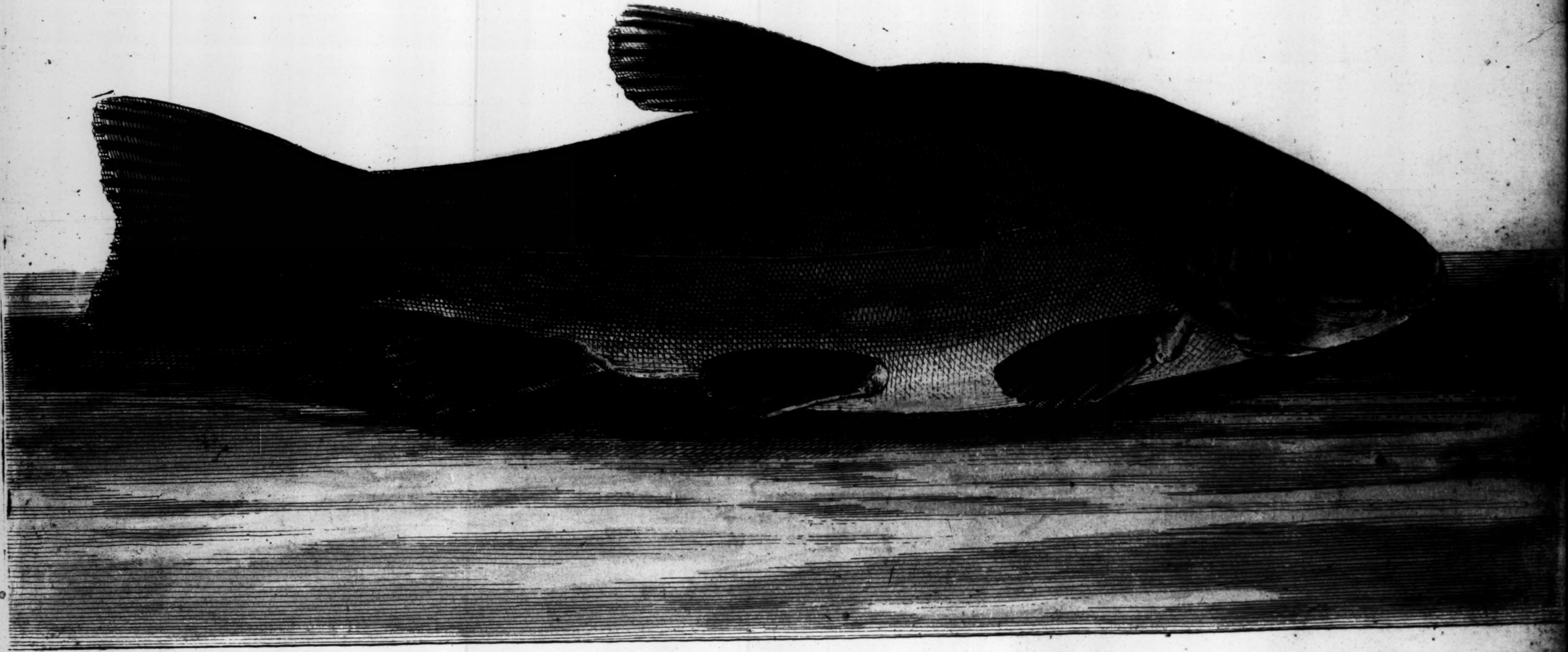
The fiſhermen imagine, very erroneouſly, that the Bleak, which appear in multitudes near Glouceſter in the months of July and Auguſt, are the fry of the Shad: many of theſe are taken in thoſe months only; but none of the emaciated Shad are ever caught in their return.

The Thames Shad does not frequent the river till the month of July, and is thought a very coarſe, inſipid fiſh. At that time, the Twaite, a variety of Shad which makes its appearance in Glouceſter, and is taken in great numbers in the Severn, but held in as great diſrepute as the Shad of the Thames. The real Shad weighs ſometimes eight pounds; but in general from four to five. The Twaite, on the contrary, weighs from half a pound to two pounds, which it never exceeds. It only differs from the ſmall Shad, by having one or more black ſpots on its ſide, which are generally placed one under the other.

The TENCH

Is, in Icthyology, the Engliſh name of the Tinca of the modern authors; but, according to the Artedian and Linnæan ſyſtem, a ſpecies of the Cyprinus. It is diſtinguiſhed by Artedi by the name of the blackiſh, mucous, or ſlimy Cyprinus, with the end of the tail even.

The



Tinca: *Tenche:* *A Tench:* *Eliz: Albin Delin May 27 1737*

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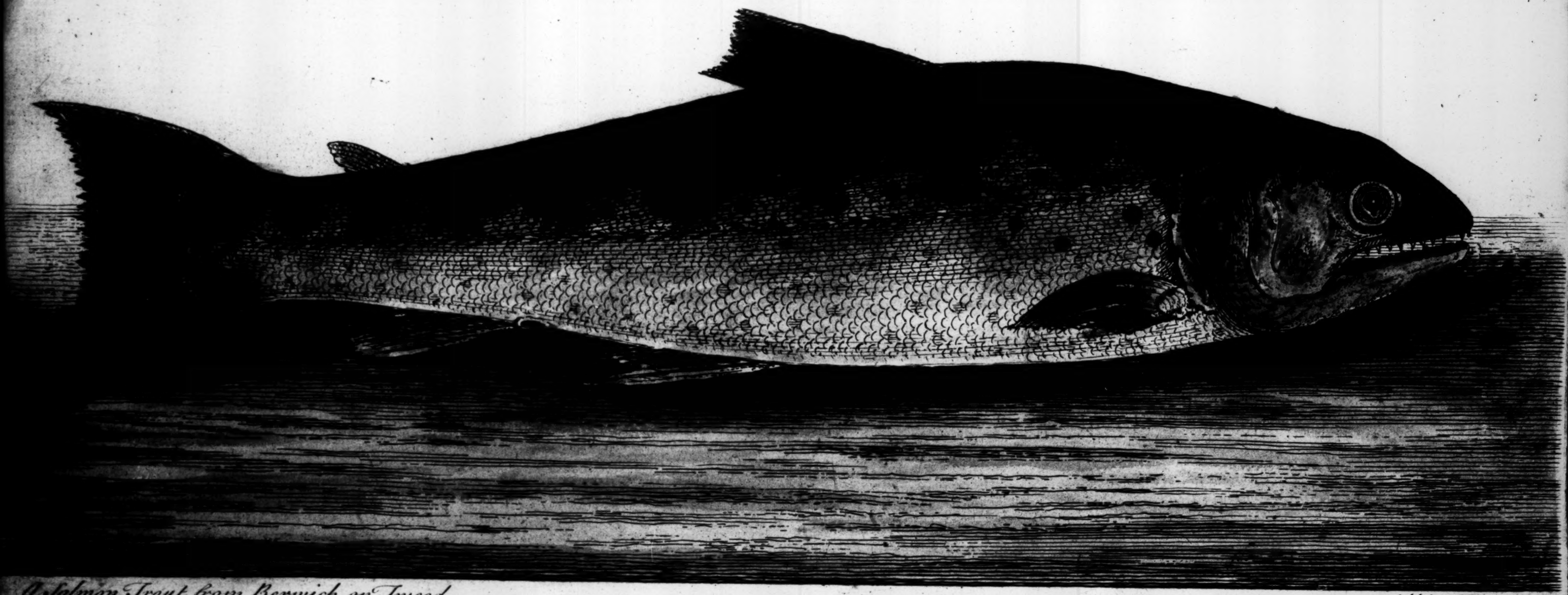

A Salmon Trout from Berwick on Tweed

E. Albin 1740.

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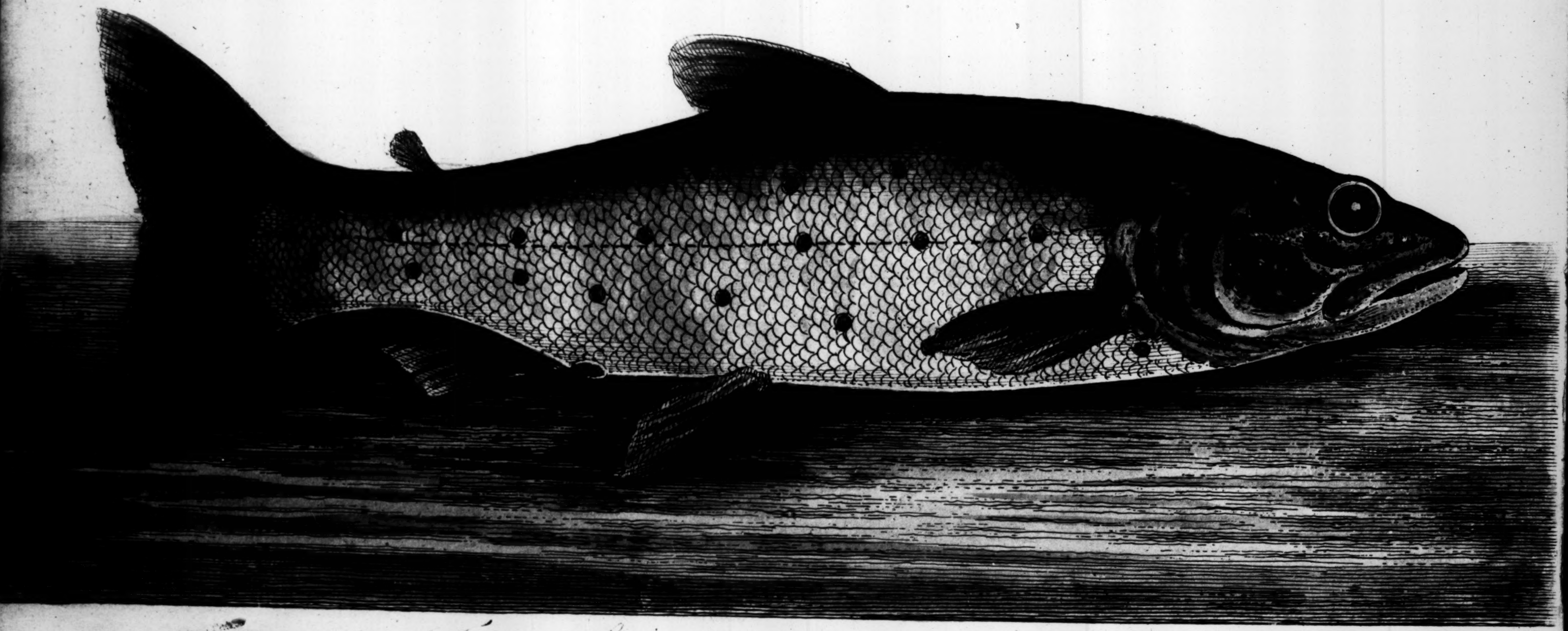

2 Trocta, the Trout; Albin Fecit, 1741.

The TROUT

Is a very valuable river-fiſh; the characters of which are theſe. It has a long body; its head is ſhort and round, its noſe blunt at the end: its tail is very broad; its mouth large, and each jaw furniſhed with one row of ſharp teeth. In its palate there are three parcels of teeth, each of an oblong figure, in the congeries, and all meeting in an angle near the end of the noſe; the tongue has alſo ſix, eight, or ten teeth on it. It is very beautifully variegated on the ſides with red ſpots. The colour of the Trout, and of its ſpots, varies greatly in different waters and different ſeaſons; yet you may reduce each to one ſpecies.

In Llyndivi (a lake in South Wales), there are Trouts called Coch y Dail, marked with red and black ſpots about the ſize of a ſixpence; others, not ſpotted, and of a reddiſh hue, which ſometimes weigh from eight to ten pounds: they are very ill taſted. In Lough Neagh, in Ireland, there are Trouts called Buddagh, many of which weigh thirty pounds; others are taken of a much ſuperior ſize, in Hulſe Water (a lake in Cumberland), the ſame as thoſe Trouts in the lakes of Geneva.

The ſtomachs of the common Trouts are very thick and muſcular, as they feed on the ſhell fiſh of lakes and rivers as well as the ſmall fiſh; and take gravel or ſtones into their ſtomachs to aſſiſt in comminuting the teſtaceous parts of their food. The Trouts of certain lakes in Ireland are remarkable for the great thickneſs of their ſtomachs, which, from ſome reſemblance to the digeſting organs in birds, are called Gizzards; and the ſpecies which have them, are called Gizzard Trouts. Theſe ſtomachs are frequently ſerved up to the table in Ireland, under the nomination of Gizzards.

Trouts are a very voracious fiſh, affording the angler great amuſement. The under jaw of the Trout is ſubject to the ſame curvature as that of the Salmon. There is likewiſe a ſpecies of Trout, which migrates out of the ſea into the river Eſk in Cumberland, from July to September, and called, from its colour, the Whiting. Its taſte is delicious. When they firſt make their appearance from the ſalt water, they have a Salmon Louſe adhering to them. They have milt and ſpawn; but no fry has been yet obſerved. It goes under the appellation of Phinocs, among the Scotch. They are never more than a foot in length; the upper jaw is ſomewhat longer than the lower; the upper contains two rows of teeth, and the lower one: on the tongue there are ſix teeth. Its form is truly elegant; the colour duſky, mingled with ſilver. Firſt dorſal fin ſpotted with black; the tail quite black, and forked; the firſt dorſal fin has eleven rays; the pectoral thirteen; the ventral nine; the anal nine.

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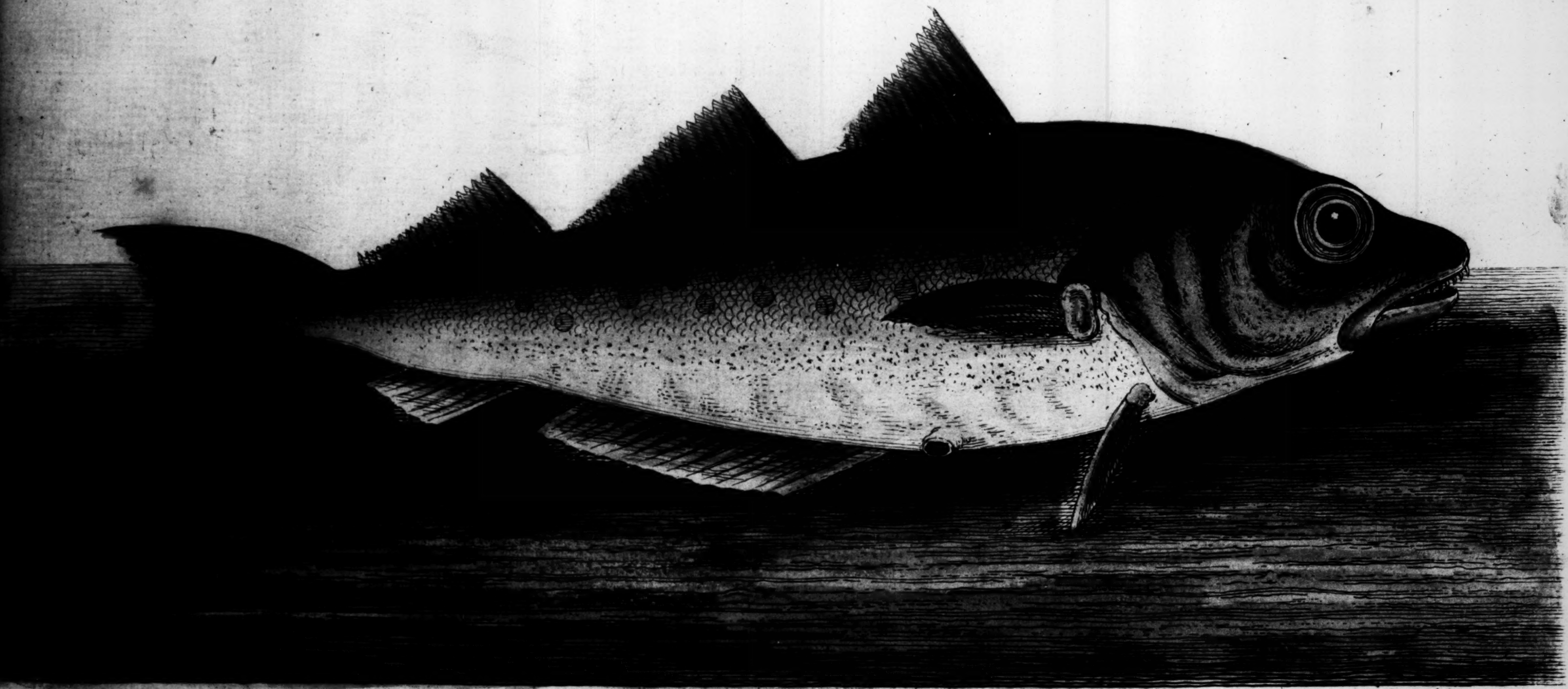

Fortin. Albin. delin. 1740.

Aſellus *The Whiting*

The WHITING

IS, in Icthyology, the Engliſh name of a common fiſh of the Aſellus kind, called by ſome Aſellus Mollis, and by others Aſellus Albus, or Merlangus. It is certainly, according to the Artedian ſyſtem, one of the Gadi; diſtinguiſhed by that author by the name of Gadus with three fins on the back; without beards, with a white body; the upper jaw long than the lower.

The Whiting, or Gadus Melangus of Linnæus, has a very elegant form: its eyes are large, its noſe ſharp; the teeth of the upper jaw are very long, and appear above the lower when cloſed. The firſt dorſal fin has fifteen rays, the ſecond eighteen, and the laſt twenty. The head and back are of a pale brown colour; the lateral line white and crooked; the belly and ſides ſilvery; the ſides being marked lengthways with yellow.

They appear in the ſea, by large ſhoals, in the ſpring, keeping at the diſtance of about half a mile to that of three miles from the ſhore. They are the moſt delicate and wholeſome of any of the genus, and ſeldom grow to more than ten or twelve inches in length.

A
DISCOURSE
OF
FISH AND FISH-PONDS.

BY

The Hon. ROGER NORTH.

A DISCOURSE OF FISH AND FISH-PONDS.

Of the Situation and Diſpoſition of the principal Waters.

ONE great point in the conduct of fiſh, is, to have them at command; another is, to have perpetual recruits, to ſupply your ſtock as you draw it off. This is not to be done without a certain order and method; and with it, nothing is more practicable and eaſy.

Your method muſt be, to have ſome great waters, which are the head-quarters of the fiſh, from whence you may take, or wherein you may put, any ordinary quantity of fiſh. Then to have ſtews, and other proper auxiliary waters, ſo as you lead the fiſh from one to the other, whereby you never ſhall want, and need not abound; and, which is more, loſe no time in the growth of the fiſh, but employ the water, as you do your land, to the beſt advantage.

This will appear more diſtinctly in the ſequel of this diſcourſe, which ſhall begin with the ſituation and diſpoſition of the principal waters, whereupon you muſt depend for the raiſing and feeding the greateſt part of the ſtock.

First, you muſt examine the grounds, and find ſome fall betwixt two hills, as near a flat as may be, ſo as there be a ſufficient current for the water. If there be any difficulty in judging of ſuch, take an opportunity after ſome ſudden rain, or the breaking up of a great ſnow in winter, and you ſhall ſee plainly which way the ground caſts; for the water will take the true fall, and run accordingly.

The condition of the place muſt determine the quantity of ground to be covered with water. I ſhould propoſe in all, fifteen acres in three ponds, or eight acres in two, and not leſs. And theſe ponds ſhould be placed one above another, ſo as the point of the lower may almoſt reach the head or bank of the upper; which will be very beautiful, as well as profitable, as will appear afterwards.

The head or bank, which, by ſtopping the water in its current, is to raiſe the water, and ſo make a pond, muſt be built with the clay and earth taken from the pan or hollow dug in the loweſt ground above the bank; and that pan ſhould be ſhaped as half an oval, whereof the flat comes to the bank, and the longer diameter runs ſquare from it.

But were there not need of earth for this purpoſe, it were better to leave the natural ſoil for the fiſh to feed upon. I ſhall give the reaſon afterwards, and conſider the manner of raiſing and fortifying the bank particularly.

⁂

Of the Manner of the making and raiſing Pond-Heads.

IT is obvious, that if you make a dam croſs a valley or ſwamp, where at any time after, the water runs, it will produce a pond; and as the bank or dam is higher at the point or center, which is againſt the loweſt ground, ſo much is the pond deeper; and if the hills on each ſide riſe ſteep and quick, the water ſtopped will cover leſs ground than if they riſe ſlow.

Now firſt, for making the bank or head, you muſt be ſure it is tight, and that it do not ſew or leak, as it will certainly do, if it be compoſed of mere-earth; therefore a bed or wall of clay, the whole length of the bank, muſt be carried up with good ramming, from a foot or two below the ſurface of the ground, to ſuch height as you propoſe the water ſhall ſtand.

If you do not give the bed of clay this foundation, the water lying under a great weight from the depth of it, will work itſelf underneath, ſo allow a ſpit or two at leaſt for it. Then, as you ram the clay, you muſt be ſure that earth be brought to carry the bank up with it, or elſe the ſun will ſearch and crack it, which is of pernicious conſequence; ſo when it is come to its full height, cloſe and cover it with earth immediately, leſt the inconvenience happens.

You muſt allow three feet to the breadth of this bed of clay, and raiſe it to the height you intend the water ſhall ſtand, and lay earth three feet higher; two feet would have ſerved, but that the allowance of one at leaſt muſt be made for the ſinking of the bank; for it will do ſo notwithſtanding the preſſing of tumbrels, horſes, and men working upon it.

If you project many ſtews, or other ponds to be ſunk right down about the ſame time, you will have great advantage by the clay you take out of them, which will be much more than is neceſſary for the bed, and that may fortify the bed, by being preſſed down by the tumbrels on each ſide of it; and ſo the bank will be very much confirmed, and it will alſo ſave breaking of ground within the pond, which is a great advantage in the feed of the fiſh.

The Dimenſions of Pond-Heads.

THE dimenſions of theſe banks are governed by the manner of the hills riſing; for if it be quick, then, to cover a competent quantity of ground, you muſt raiſe the bank higher, and conſequently it muſt be made ſtronger, than when the ground riſeth ſlow, ſo as a moderate height ſhall caſt the water upon ground enough. And of this there will be great difference; for in ſome places, ten feet high ſhall cover as much as twenty feet in others. And this will be eaſily diſcovered by the water-level, uſed according to art, whereby you may ſtake the water-line upon the ground to any height; and ſo you will fix the determinate height of the bank.

I will ſuppoſe a medium, and that a bank, fourteen feet high at the center, will cover the quantity of ground. Then you muſt make your bank at the foot at leaſt fifty feet wide, and ſo ſtraitening by equal degrees on either ſide, bring it to ſixteen at the top; and ſo you will have a ſufficient ſlope, and the bank will ſtand firm and durable, ſcarce to be deſtroyed without as much pains and induſtry as made it.

By this proportion, pond heads of any dimenſion may be projected; the matter is not ſo nicely circumſtanced, that a little more or leſs ſhould ſignify. But it muſt be noted, that to make them too ſlight, is the greateſt error, and moſt to be avoided; let them be rather made too ſtrong, for then you have not only a more ſecure bank, but a more beautiful walk, and more room for wheel-carriage, beſides a capacity of ſome wood; all which compenſate the charge of what is ſuperfluous.

Of ſecuring your Banks.

IF the bank be well made, and in ſufficient dimenſion, nothing can hurt it, but great land-floods, or water-ſhots, which, if ſuffered to run over the bank, will carry away the fiſh, which in a warm flood will riſe, and go with it to ſeek adventures, but alſo gurry holes in the back of the bank, and weaken it ſo much, that if the flood continues, it ſhall carry all away together.

For preventing of this miſchief, there are two ways; 1. Grates at each end of the bank, planted upon the level that is to be the higheſt of the water. 2. Channels of diverſion, which being taken ſo high in the current as may lead the water upon the ſide of either hill above the bank, you have the power to turn out all the water when you pleaſe, ſo that none ſhall come upon the bank.

1. As to grates, the way of them is well known; however obſerve, that if they be made of wood, the banks muſt be ſet diagonally, like window-bars; for ſo rubbiſh ſtops leaſt againſt them, and the water paſſeth freely. And in regard you cannot allow any great diſtance between them for keeping in the fiſh, you muſt help out the room by extending the grate from each ſide of the cut in the bank where the water is to vent, ſome conſiderable ſpace from the bank, and there to meet in a point, forming a triangle upon the bank. Here are many more ſlits for the water to vent at, than if the grate lay flat upon the bank, covering the paſſage only. And if need be, there may be doors to ſlide up and down, made in the grate, to let the water paſs more freely; but this endangereth loſing the fiſh. If you will afford iron for theſe grates, you need only cover the paſſage of the bank; for the bars need not be ſo thick, but there will be ſpace enough for the water to vent at.

2. The channels for diverting the water are very uſeful in this and many other reſpects; for they give you a perfect

command of the water, and you may turn it which way you pleaſe, ſo as to fill or keep dry any of the ponds, and in a wet ſeaſon are a perfect ſecurity. Theſe ſhould be made four feet wide, and on each ſide of the ponds the loſs of ground is not conſiderable; for wood growing there will make amends for it.

The ſtring of ponds in Hyde-Park are admirably diſpoſed in this reſpect; for the current of the valley is carried along by the ſide of all the ponds, and may be let into any of them, or any may be emptied into it; than which, there is not a greater command of water.

However carefully a bank is made, it is probable it will ſew a little at firſt; but this ſhould be no diſcouragement; for by the ſettling of the earth, it will continually grow higher, and in a few years, if made with tolerable care, be as firm as a rock.

Of Sluices.

THESE are very requiſite to the good command of a water, and though very ordinarily uſed, yet require an experienced carpenter to make and fix them as ſhould be, eſpecially in great waters; and ſuch as have not experience, ſhall err moſt groſsly in this work. They muſt be framed ſo as to ſtand firm, that the force of any thruſt, or a boat's running againſt them, may do no prejudice to them: for if they are any thing ſtrained, they are apt to prove leaky; and in ſo great an height as is needful for deep waters, a ſmall matter will do it, unleſs they are extraordinarily well abutted.

The timber-work muſt be heart of oak, eſpecially the top, and that all of one piece, how long ſoever it be; and the vent hole muſt be guarded with large boxes perforated ſo as the water, but no fiſh, may paſs. And all this well framed, and what is under ground extraordinarily rammed with clay, elſe it will be apt to leak.

The uſe of theſe is very great: for if a great water muſt be emptied, you muſt either apply engines, cut the bank, or draw a ſluice. As for engines, they are too chargeable, and puzzling to fix; however, I may propoſe to them that are lovers of art, ſome facile ways of lifting great quantities of water. Then, if you cut the bank, the paſſage is interrupted and made troubleſome by the earth, and you ſhall ſcarce ram it up ſo well again, but it will perpetually leak about the place where the fiſſure was; but ſluices vent the water certainly, though ſlowly, without any labour, charge, or inconvenience.

❧

Of the Manner of working to raiſe a Pond-Head.

NOW, as for the manner of raiſing this bank, which I think is the only chargeable work you have, I ſhall give ſome light into the way of working, ſo as to abridge the expence as much as may be. The advantage of trades, is, that by continual experience, they find nearer ways of doing things, ſpending fewer ſtrokes, and leſs time, than others can. And in the conduct of this work, there is much to be ſaved; every man's reaſon leads him to contrive compendiums of buſineſs, as I have done in the diſpoſition of my waters; which experience of mine may ſave others the thought, as well as loſs by making their own experiments.

When you have projected your work, for which the latter end of June, or the beginning of May, is the beſt time, take the aſſiſtance of your neighbours, and provide yourſelf with ſix tumbrels, four good horſes, and two ſtout labourers, beſides the driver to each pair of tumbrels. I call them pairs, becauſe they work alternately with the ſame horſes; ſo that one is filling, while the other is moving, and your labourers, as well as horſes, are always at work.

The firſt work to be done, is, the taking up the firſt ſpit of earth where the bank is to be, and from the pan of the pond, and to lay it by for the uſes I ſhall declare hereafter.

Then lay down your ſluice, with trunks ſufficient to convey the water through the head or bank. This mnſt be done at the deepeſt part of the ground, which probably will fall in the center of the bank. This will employ two pair of tumbrels and four labourers, for digging and fetching of clay, beſides four labourers to ram it, which muſt be, as was ſaid, very well done. And the carpenter, who beforehand hath fitted his work, muſt attend alſo one whole day to help in the laying it down, and to ſee it well rammed.

The next day's work may be the employment of two pair of tumbrels in fetching of clay, and four or five good labourers to ram the foundation of the bed of clay. And I ſuppoſe this may riſe a foot in one whole day's work, more or leſs, as the length of the head is. Clay riſeth ſtiff, and for that, if it riſeth near, as in the pan of the pond, three labourers to a pair of tumbrels, are requiſite to dig and fill, otherwiſe the horſes will be idle, and want work as well as the rammers.

The day after employ four pair of tumbrels more, to fetch earth out of the pan of the pond to lay along the bank on each ſide of the bed of clay, the whole length of the head; and to this work, two labourers for a pair of tumbrels are enough.

Here you muſt lay on ſix labourers at leaſt, to ram the bed of clay, and ſpread earth upon the bank, ſo that it may be done as faſt as the ſix tumbrels ſupply it; and by this means the bank and bed of clay will riſe together.

Thus you proceed till the bank is finiſhed, which will riſe faſter as you come nearer the top, and ſo will ſomewhat alter the employment of the tumbrels and men, which you muſt conform in proportion accordingly. And obſerving theſe directions, you may make two ponds in one month (ſuppoſing the weather propitious), which ſhall be three, four, or five acres apiece, as the ground gives, and not expend in money above eighty pounds, although you pay for every hour's work of man and horſe.

But conſidering that a gentleman is ſuppoſed to intend this buſineſs, not only as a care, but an entertainment, he will not ſuffer his own ſervants and horſes to be without a ſhare of it; and then I cannot imagine which way he can expend above ſixty pounds, ſuppoſing labourers work for twelve pence per day, which I cannot ſay they will do in all countries.

The third pond may be a work of another year; and if the ground lies fair for it, that is, much upon a level, I would not be without it; for it will add much to the ornament of your eſtate, becauſe it will fill up a range or ſtring of waters, which two do not; and beſides contribute vaſtly to the increaſe of fiſh, as I ſhall ſhew; and I preſs this thing the rather, becauſe without it, in the method I propoſe, you will have the uſe of but one pond as to water every year. Nay, were not œconomy, and ſaving charge, one great branch of my deſign, I ſhould recommend more of theſe waters, if the place will receive them.

And to demonſtrate the charge is not ſo very great, compared with the other expences gentlemen are at for their diverſion, without any return of profit, as to deter any from undertaking this particular work; I muſt remember, that once, at the command of my Lord North, I did, as I have directed, proceed to the making one great pond, and one ſtew, at Catledge, which are ſtill to be ſeen, but neglected; and beſides, the regard to profit by the fiſh they would maintain and ſupply, the very ornament of them was worth the charge. I was limited to ten pounds, beſides the work of his lordſhip's horſes, which I compute to be four pounds more; ſo the whole did not coſt fifteen pounds, and yet a full acre of ground lay under water, and all was completed in twelve days. His lordſhip would not allow the laying down a ſluice, elſe that water was a ſpecimen of my propoſition, as well for the conduct, as the charge of the work.

Of Auxiliary Waters.

As a great garriſon muſt have many ſubſervient forts and redoubts diſperſed about the place, for ſecuring the country, and collecting the contributions, which are to maintain the head-quarters; ſo the great ponds, which are the head-quarters of the fiſh, muſt be accommodated with many other ſubſervient waters, which I call auxiliary, becauſe they ſerve to relieve the greater when over ſtocked, to ſupply them when under ſtocked, and to rear up and maintain fry and young ſtores, as well as to render the fiſh eaſy to be taken; without which conveniences, you will have but a ſorry account of the fiſh.

There are ſtews, moats, and ordinary ponds diſperſed about in your eſtate and neighbourhood; the employment of which being very conſiderable in the well ordering of fiſh, I will conſider each apart; and firſt, of ſtews.

Of Stews.

THE peculiar uſe of theſe, is, to maintain fiſh for the daily uſe of your houſe and friends, whereby you may with little trouble, and at any time, take out all or any fiſh they contain; therefore it is good to place them in ſome incloſed grounds near the chief manſion-houſe. Some receſs in a garden is very proper, becauſe the fiſh are fenced from robbers, and your journey to them is ſhort and eaſy, and your eye will be often upon them, which will conduce to their being well kept, and they will be an ornament to the walks.

If you have two great waters of three or four acres apiece, I do adviſe, that you be not without four ſtews, of two rods wide and three rods long apiece. The way of making theſe, is, by cutting the ſides down ſomewhat ſloping, and carrying the bottom in a perpetual decline from end to end, ſo as you may have a convenient mouth, ſuch as horſe-ponds uſually have, for taking out your nets when you draw for fiſh.

If you have ground enough, it is better to make a mouth at both ends, and the deepeſt part in the middle; for ſo you may draw your nets backwards and forwards, loſing leſs time, and the fiſh will not have ſuch ſhelter, as the depth under a head will be. Beſides this, you will find the fiſh will delight themſelves in coming upon the ſhoals, and it may be, thrive better. But for this manner you muſt allow at leaſt a rod of ground in length more than for the other.

Theſe I intend for carps chiefly, though not abſolutely; and if you find the tench and perch increaſe and proſper, you may make other leſſer ſtews to accommodate them apart, if you pleaſe; and ſo you will have them at command, without diſturbing the other fiſh; only obſerve this by the way, that perch will ſcarce live in ſtews and ſmall waters, if the weather be hot, but will pine, grow lean and thin, if not die; therefore the ſtews are to be their winter-quarters; from whence you take them for the uſe of your table, but in ſummer tranſlate them to the greater ponds.

Theſe ſtews being deſigned at the ſame time you raiſe the pond-heads, will be done almoſt under the ſame charge, as is hinted elſewhere: and once made, you have the fiſh at a minute's warning ready for the kettle, or any other uſe; which convenience is the great end of all the charge and pains, and without it, you are not a maſter of fiſh.

Of Moats.

THESE were made ordinarily for ſecuring of dwelling houſes, rather than for fiſh; and ſince wars have been leſs frequent, or rather, grown ſo much an art, that the ancient way of fortifying is not uſeful, are almoſt diſuſed. For being laid ſo near the dwelling, as we obſerve commonly they are, for want of ſun, and air to purge them, the water grows putrid and ſlimy, yielding no pleaſant ſcent to the houſe; beſides, when laid dry, as is neceſſary ſometimes, the ſtench and filth of them are inſupportable; and therefore many gentlemen have either ſlighted them wholly, or preſented the form only, as a walk or low garden, planting the ſide-walls with fruit, but without water: and ſo is the moat at Althrop in Northamptonſhire, a ſeat of the Earl of Sunderland's, much of late beautified, put in order, and from a defect, turned to a great perfection.

But I am an advocate for moats, ordered as they might be, and do eſteem them a very great accompliſhment to a ſeat in many reſpects. 1. Though they are not a fortification for reſiſtance in time of war, yet againſt pilferers and tumults, they are ſufficient and better than any walls you ſhall make. 2. They ſhall nouriſh a world of fiſh, which, though not ſo well at command as in other waters, yet for angling, and the ſporting part of net-fiſhing, are better than the others are, becauſe nearer, and fiſhed with ſmaller nets. 3. They are an ornament and delight to a ſeat beyond imagination, as will appear when I have ſhewed how I would have them made; and of that next.

They ſhould encompaſs not only the houſe, but all the out houſes, yards, orchards, and it may be a pightle or two, ſuch as are neat for ordinary convenience of horſes, or a cow or two: I ſay, all that is called the home-ſtall, ſhould be environed by the moat. It ſhould be no leſs than forty yards, or one hundred feet over, cut down with a ſlope on each ſide, as your pond-heads were, without walls; which are too great charge to keep in repair. And towards the paſtures, you may make a mouth; if it runs the whole length of one ſide of your moat, it is the better, and fiſh will increaſe and thrive from it. Let there be but two avenues with bridges: And to prevent the charge of croſſing ſo great a length with bridge-work, you may leave the earth on each ſide broad enough for carriages, but not to meet by ten or twelve feet, which may be covered by a bridge, and underneath, the water to communicate; ſo the paſs ſhall be, as upon a cauſeway, with a draw-bridge; for ſo it may be made, if you pleaſe.

I know all ſituations and ſoils will not admit of this; for ſome are low and marſhy, and ſo have naturally too much water; others are upon hanging ground, which for want of a level, cannot be moated in this manner; others are ſandy, and will not hold water: But the happieſt of all, is, ſuch a ſituation as either hath ſprings, or will take a current, and diſcharge it again by a ſluice or gates, ſo that the moat ſhall be perpetually fed with a freſh water, and may at any time be laid dry; therefore in theſe affairs there muſt be a previous judgment of the place, elſe undertakings will not ſucceed, and that is a great diſgrace.

Now, ſuch a moat as this hath all the convenience I ſpoke of, beſides ſerves the houſe with water; which from the wind and the ſun's free acceſs to it in a great body, will certainly preſerve it ſweet and wholeſome. The ſinks of the houſe will not foul it, as it doth in leſſer quantities, even to kill the fiſh, as well as make the water unfit for uſe. The view of it is a delicacy the greateſt epicures in gardening court, and we hear of it by the name of canal. Then the moving upon it in boats, either in calm weather, or with ſome wind that ſtirs the water, and gives a power of employing ſomewhat of ſail, after a romantick way; and thus circling an houſe, taking the variety of walks and gardens here and there, viſiting ſtables and offices, ſeeing the horſes air upon the banks, &c. are pleaſures not given to be underſtood by any but ſtateſmen, laid aſide for their honeſty, who by experience are taught the variety of greatneſs, and have an underſtanding to diſtinguiſh the true felicities of life.

I know the objection of charge, which muſt be very great in ſuch a work as this; but I conſider the great profuſion of money that is allowed to tranſitory vanities; ſuch as habits, treats, equipages, not to mention vices too well known; ſuch as are tellers of money and depauperate families, leaving nothing but diſeaſes to ſhew for them. If ſo much, or a much leſs proportion being diſpoſed to employ mankind, the poor eſpecially, in making holes, and filling them again, were much more commendable. What is it then to produce advantage to yourſelf and family, to improve your habitation and eſtate, preſerve health and reputation?

But even the charge might be alleviated, if not in great part ſaved, by good management. For ſuch groſs works as this may be put out to undertakers, and you may compute by the ſolid foot or yard, what the charge will be; and the maſters will ſee the men work, which you cannot do if you are maſter, and do all by the day. Then, every one delights to have raiſed walks and terraces about an houſe and garden; ſo that the earth being employed in ſuch, and raiſing mounts in proper places, will produce a real equivalent for the charge: but this is a digreſſion which here I conclude, and return to the affair of fiſh.

Then conſidering moats, as commonly they are, it is not expected that the fiſh ſhould be much at command, becauſe it is difficult, and perhaps not convenient to lay them dry. However, they ſhould be kept full ſtocked, and will maintain a great many. This will mend your angling, and the fiſhing with nets will ſeldom be labour in vain, as certainly it will prove if under ſtocked. Theſe waters will receive a great ſhare of your fry and ſtores that are ſuperfluous, and ſo preſerve them.

If a moat come to be laid dry, as will be neceſſary ſometimes to keep it from turning all to mud, after you have by a ſluice or cut, drained the water as low as you can, make dams with boards and clay, and ram them to be water-tight; ſo you may toſs the water out of one diviſion to another, and take out the fiſh in good order; but if you dry all together, you will not be able to ſecure all; beſides, having one diviſion full of water, you can relieve the fry and eels by letting it upon them; which elſe, for want of a freſh to let in upon them, will be loſt. So when one diviſion is fiſhed, that is relieved by toſſing the water out of the next. And this courſe is not amiſs, though you intend to throw out the mud; for the ſaving the fiſh while you are taking them out, quits the charge of making the ſtanks.

Of other auxiliary Waters.

YOU muſt have other waters beſides ſtews, to aſſiſt in the diſpoſition of the fiſh; for laying a pond in that great order dry, as I propoſe, once in every year, there will be a great quantity of fiſh to be diſpoſed; ſo that you muſt have a ſufficient quantity of waters to receive when you abound, and to recruit when you want. The ſtews will carry ſixty, ſeventy, or eighty carps apiece, ſuppoſing you ſpend continually out of them; ſo other waters will receive their proportion, by ſending this way and that the ſtock of fiſh, you will preſerve all, and know where to find them again.

Theſe bye-ponds will be diſperſed about your eſtate, where perhaps your predeceſſors thought fit to make them, for the convenience of their paſtures, or you may make them as you

can

can beſt, with reſpect to charge and other advantages, obſerving always in a ground to take that part for your pond, to which the waters are moſt apt to ſettle. In ſome places, but very few, the waters ſtand beſt upon the hills, and the valleys, when ſandy, will not hold well. The nature of the ground is to be regarded.

Some ponds of good depth, of about five or ſix rods ſquare, ſhould be aſſigned to maintain pikes, which, when great, ought to be kept by themſelves; for in a few years they will devour other fiſh, and greatly ſurpriſe you in the deſtruction they will make. But I ſhall ſpeak more of this when I come to the ſtocking of waters.

I do much approve of cleanſing and caſting out the mud of ſmall ſtanding waters once in ſeven or eight years, and ſo letting them lie dry one ſummer, if you can ſpare the water; which, from moats, and paſture-waters, can ſcarce be done, without great inconvenience. Theſe matters exerciſe the invention of a good œconomiſt, who will endeavour to prevent damage, as well as ſave time, and turn even his pleaſures to profit.

One thing I advertiſe here, which is, not to let carps continue in a ſmall ſtanding water above two ſummers and one winter; for ſo you run a much leſs hazard from froſt, than otherwiſe you will do; beſides, the fiſh will grow much more upon tranſplanting, than by continuing in the ſame water, and more in the great, than in the ſmall waters: but of theſe things more afterwards.

The Courſe of laying the Great Waters Dry.

BEFORE I come to the buſineſs of fiſh, I will finiſh what I had to ſay about ponds, and the conduct of them; and of that only remains to ſpeak of the courſe of laying them dry.

As for the ſmaller waters, I have touched what concerns them already; as for the greater, or principal ponds, proceed thus:

In October, or after, draw the ſluice of the firſt made pond, and lay it as dry as poſſible you can. It may be the ſluice, eſpecially if the pond be many acres, will not vent the water ſuddenly. That is of no great import, becauſe, as the waters fall, you will have opportunity of fiſhing with nets, and ſo clear the fiſh by degrees; which left to the laſt, will be too great a burden to clear, and will not be done without damage; beſides, the hurry will diſorder every thing. If the ſluice will not vent all the water from the pan, a labourer or two will ſoon throw it out with ſcuppets. Here you find the uſe of the channels of diverſion, ſpoke of before; for they will keep off all land-waters, if the time ſhould prove rainy, and ſo permit the pond to empty, and continue dry, which you could not anſwer for a day without them; and therefore they ſhould be made on both ſides of the waters, on each hill one, which will defend the ſhot of theſe hills, that otherwiſe would retard the work.

When your pond is dry, and thus ſecured, keep it ſo all

ſummer,

ſummer, and you may make a profit of the ſoil ſufficiently, either by ploughing or feeding. And at Michaelmas next, or a little ſooner, let fall the ſluice, and turn in all the water you can, that the pond may fill, and at the being near full, it is ready to receive the ſtock again.

At the ſame time lay another dry, proceeding as before; which you may do alternately during your whole life: nay, if you have but two great ponds, this is the beſt courſe, and will turn moſt to the profit and feed of the fiſh, as I ſhall ſhew when I ſpeak of feeding.

If your ſtock be very great, you may let your ponds ſtand full two or three years, but not longer, unleſs you delight to ſee ſtarved lean fiſh; for ſuch they will certainly be, unleſs you keep an under-ſtock by three-fourths continuing in the ſame water four or five years. And it is a certain rule, that the oftener waters are laid dry, the better the feed of the fiſh ſhall be, and more ſhall be maintained. And a little experience will demonſtrate the advantage to be great, as to the ſize, fatneſs, and ſweetneſs of the fiſh.

When your pond is dry, concern not yourſelf to carry out the mud for the firſt fourteen or fifteen years; and then let it be only out of the pan whence you took the earth to raiſe the bank, but never break the turf of the reſt of the ground flowed: but when it comes to be a yard thick in mere mud, it is good to take it out; for though mud be good to improve ground, yet, when it is taken from the pond, down to the dead earth, your ground and ſoil are depauperated, and the water by conſequence, which cheats the fiſh, that is, yourſelf.

Of

Of the Breeding of Fiſh.

HAVING done with ponds, the manner of making, preſerving, and uſing them, I intend next to diſcourſe of fiſh, and how beſt to diſpoſe them to maintain the waters in full ſtock: but before I come to the ſtocking of waters, I muſt ſpeak of the courſe of breeding fiſh, whereby the ſtock is to be recruited and ſupplied.

Some have thought, that great difference is to be found in the ſorts of carps, ſome whereof are more apt to grow up to a great ſize, others to ſpread and look thick, and others for the ſweetneſs of the meat. I do not deny but there may be ſome difference, but I cannot eſteem it ſo conſiderable, as to be worth the looking after. Varieties in nature are infinite, and in the ſeveral breeds of fiſh, as of other creatures: yet I have not obſerved ſo much of it in carps, that I could tell how to diſtinguiſh them, where I could promiſe myſelf better ſucceſs with one ſort than another. This is a nicety which fiſhmongers, that make a trade of buying and ſelling, talk of, intending it only as a topic of myſtery, which all trades affect, and to have ſomething to ſay for valuing or undervaluing, as they ſell or buy, to juſtify in their talk the prices they propoſe to take or give; therefore this nicety is left to them.

I do yet believe, that a ſort of fiſh, bred in great numbers in bad waters, over-ſtocked, and almoſt ſtarved, may in proceſs of time degenerate, and both loſe a good ſhape, and be leſs apt to grow up to a due greatneſs, than others that have been better deſcended of a cultivated ſtock: and on the other ſide, it is no leſs poſſible, that by coming into good quarters, fiſh may improve and mend; ſo that a gentleman is to expect the goodneſs of his fiſh from the cleanneſs of his waters, and the plenty of their feed, and not from any choice of his ſtock or breed; and let him get them where he may, if well ordered, he may aſſure himſelf they ſhall anſwer his expectations.

It is a common obſervation, that ſome waters will, and others will not breed. It is my experience, that moſt waters, the firſt year after having lain dry a ſummer, do breed, and that numerouſly, eſpecially carps, which I have known increaſe to ſuch an incredible fry, that I have been troubled how to diſpoſe them, ſo as to have them again after three or four years, when they became good ſtock for great waters. Eels and perch are of very good uſe to keep down the breed of fiſh; for they prey much upon the ſpawn and fry of bred fiſh, and will probably deſtroy the ſuperfluity of them.

The quality of breeding is ſcarce to be found out by any certain ſymptom; for ſome very promiſing ponds do not prove uſeful that way. The beſt indication I know of a breeding pond, is, when there is good ſtore of ruſh and grazing about it, and gravelly ſhoals, ſuch as horſe-ponds uſually have. When a water takes thus to breeding, with a few milters and ſpawners, two or three of each, you may ſtock a country.

As for pike, perch, tench, roach, &c. they are obſerved to breed in almoſt any waters, and very numerouſly; only eels never breed in perfect ſtanding waters, and without ſprings;

and in ſuch are neither found, nor increaſe, but by putting in; but where ſprings are, they are never wanting, though not put in: and which is moſt ſtrange of all, no perſon ever ſaw in an eel the leaſt token of propagation, either by milt or ſpawn in them; ſo that whether they breed at all, and how they are produced, are queſtions equally myſterious.

The Manner of Stocking Waters.

I HAVE found a great analogy between the ſtocking waters with fiſh, and paſtures with cattle; and that the ſame conduct and diſcretion belong to both. Waters may be overſtocked, as paſtures often are; ſo both may be under-ſtocked. The latter is the leſs error; for if you over-ſtock, you loſe the whole ſummer's feed; if you under-ſtock, you loſe only the reſt of your profit; what you do feed, is much the better, and turns to account by more ready ſale. So alſo of beaſts; ſome of the ſame age and feeding will not thrive ſo well as others. I have found the like in my fiſh. And waters themſelves, like paſtures, have varieties of goodneſs; ſome will raiſe carps from five to eighteen inches, in five years; others will not do it in ten. This is moſt ſenſible between your great waters made upon a fall, and the ſmall ſtanding waters, which have more inconveniencies, and are liable to froſts, and other caſualties, more than the others are.

Therefore I propoſe, that the ſmaller waters ſhould be uſed as nurſeries, and either to breed, or be ſtocked with the bred fry of other waters, to raiſe them to a fitneſs for ſtores in your principal feed; that is, to ſix or eight inches. And of theſe bred fry, you may put one hundred into four rods ſquare of water, or near that proportion, and fail not to remove them in two years time; and ſo you will have good recruits of ſtores for your greater waters.

And thus the many thouſands of bred fiſh that you will have upon the draining your great waters, which many are apt to ſlight, may be ſent ſeveral ways to the waters about that and your neighbour's grounds, and there fed up like chickens, and in time turn to great profit, as I ſhall ſhew; therefore they ought not to be ſlighted, but carefully to be preſerved; the rather, becauſe conſidering a pond (as I propoſe) will, though but four acres, feed up one thouſand ſix hundred carps in two, and perhaps in one year, from ten to eighteen inches, fit for your table-preſents, or ſale. How is it poſſible you ſhould reſtock your waters the winter after, without this providential forecaſt, whereby you have magazines of fiſh in other ponds, fit ſtores to ſupply your occaſion?

Now, as for your great and principal waters, it is hard to aſſign a certain proportion for the ſtock; but peruſing the methods I propoſe, you will ſoon come to the knowledge what ſtock the waters will carry; for laying a pond dry every year, you will ſee the fiſh well fed, or elſe thin and lean; and accordingly you judge whether the ſtock was too little or too much for the water. Thus, by the thickneſs or fatneſs of cattle, you judge if your ground will carry more or not; and both as to ſpecies and number of fiſh, experience muſt be your guide in the ſtocking of waters.

However, to ſave loſs of time, which you muſt ſuſtain by making your own experience, I will give the beſt directions I can, for the firſt entry upon your buſineſs, and not leave the matter wholly in the dark.

If the pond be ſupplied with a white fat water upon great rains, you may put into it at firſt three hundred carps per acre, in caſe there be three or four acres, elſe not ſo many. And it will be expedient to put in forty or fifty tenches for a trial, becauſe this ſort of water is moſt proper for carp; but being laid dry, ſometimes may prove well for tenches alſo, which, when thriven, are a very good fiſh; but this proof by trial muſt determine.

You may add perches to any number, and not hurt the water: I propoſe ſix hundred; for though they are great breeders, being alſo fiſhes of prey, they devour their own ſpecies as much, if not more than any other; and by deſtroying the fry of bred fiſh, they preſerve the food for the maintenance of their feeders, which the fry would intercept; ſo do good rather than harm. I took once out of a perch's belly of ten inches, ten other perches. This is eſteemed one of the beſt ſorts of freſh-water fiſh, and therefore deſervedly to be encouraged.

Have a great care of putting bream in this ſort of waters;

for they will grow up very ſlowly, though at laſt they will be great; but in the mean time they breed ſo infinitely, and ſuch a ſlimy naſty fry, as both robs and fouls the water, making it unfit for the other fiſh. But when a water is ten or twelve acres, and fed with ſome brook, winter and ſummer, they will do very well; otherwiſe not to be made uſe of.

As for pike, which are inferior to no freſh-water fiſh, and now more eſteemed than ever, being leſs plentiful upon draining the fens, and ſo harm more; they are dangerous gueſts in the great waters; for if grown large, they will devour and deſtroy the beſt fiſh, and depopulate the water. But thus far you may truſt them; if you can procure one hundred jacks once in two years not exceeding nine inches, you may put them with the carps into your great waters, ſo as your carps are not under nine or ten inches; but take care that they ſtay not above two years, and then ſend them to their peculiar ponds, and feed them as I ſhall hereafter diſcourſe, and ſo they will grow to be very large and fine fiſh, which you would not want.

I cannot adviſe the ſtocking great ſtanding waters with eels, for they grow ſlow, and being of an indifferent ſize, will be lean and dry; but in moats, which have the ſinks of an houſe drain into it, is proper enough for them, and they will thrive in it. It is a ſort of fiſh, as I noted, that belongs to a ſpringy water.

Theſe directions belong to the firſt ſtocking of new-made ponds, which, as to feeding, lie under a diſadvantage; the reaſon I have touched, and is from the dead earth in the pan from whence you raiſed the bank, and that at firſt, which is about an acre, is almoſt unprofitable. But afterwards, when that dead ground hath contracted a little new ſoil from the ſettling of the water, eſpecially after land-floods, and lain dry a ſummer, whereby it will begin to graze, it will become like the reſt of the pond, and put forth as good feed for fiſh as any other part. This may ſeem ſtrange and new, but is a great truth, known to me from indubitable experience.

Then after one, two, or three years (for longer the pond muſt not ſtand full), when you come to reſtock, and ſo on in all like occaſions, you may put four hundred carp, or three hundred carp, and eight hundred tench (if the water feeds them) into an acre, beſides perches. It is incredible to thoſe who have not ſeen it, as I have done, how carps thus ordered, by tranſplanting them every year or two, will grow. I affirm, that from ſix, they will grow to twelve and better the firſt, and to fifteen or ſixteen the next year; and then they are moſt fit for a gentleman's table ordinarily; for though greater are more oſtentatious, yet theſe are the moſt ſweet and beſt meat, as young fleſh is commonly preferred to old.

It is to be noted, that if the fiſh wherewith you ſtock the waters, were kept ſo cloſe together, and come from overſtocked waters, which renders them lean and poor, you muſt double the ſtock at firſt; elſe the two ſudden plenty of food at firſt will ſurfeit them, and they will die of overmuch blood, as I have found to my great loſs.

Of the Manner of feeding Fiſh.

IN a ſtew you may keep up thirty or forty carps, from October to March in winter, without feeding; and by fiſhing with trammels or flews in March or April, you may take from your great waters, to recruit the ſtews; but you muſt not fail to feed all ſummer, from March to October again, as conſtantly as your cooped chickens are fed, and to as good and certain account. The reaſon you feed in ſummer, and not in winter, is, becauſe the fiſh will lie cloſe in cold weather, and feed little, not caring to ſtir, eſpecially upon the ſhoals, where it is proper to give them meat.

If you would bring more fiſh together into your ſtews, you may preſerve and improve them by feeding; but there are bounds, becauſe the water is but ſmall, and will not admit any great number: but if you have a great number of fiſh to be kept for an opportunity, and you put them into a conſiderable water, you may in that manner ſtock to any quantity, taking care duly to feed them; and ſo not only maintain, but improve one thouſand per acre; but if thus over-ſtocked, and you do not feed ſufficiently, they will ſink, and you be a great loſer.

Now, as for your ſtews, the care of feeding is beſt intruſted to a butler or gardener, who are or ſhould be always at home, becauſe the conſtancy and regularity of ſerving the fiſh, conduce very much to their well eating and thriving; for they will expect their meat as duly as horſes, and appetite in any creature waſtes by diſappointment.

Any ſort of grain boiled is good to feed with, eſpecially malt coarſe ground. Peaſe boiled a turn or two are as good as any other grain. The grains after a brewing, while they are good and ſweet, are very proper; but one buſhel of malt not brewed, will go as far as two of grains. The chippings of bread, and orts of a table, ſteeped in tap-droppings of good ſtrong beer or ale, are very good food for carps. Of theſe the quantity of two quarts to thirty table carps every day is ſufficient; and to feed morning and evening, is better than once a day only.

The place to feed is towards the mouth, at about half yard deep; for that keeps the deep clean and fit, as a parlour to retire to, and reſt in. The meat plainly thrown into the water, without other device, will be picked up by them, and nothing ſhall be loſt. However, there are ſeveral ways to give them meat, eſpecially peaſe, which are uſeful, as a ſquare board let down, with the meat upon it, by the four corners, whence a ſtring comes, and made faſt to a ſtick like a ſcale, is very manageable. A gentleman had found out a very facile way to feed carps, worth noting, becauſe I have heard it was ſucceſsful. He let down the very kettle in which the peaſe were boiled, into the water, and the fiſh would come and take out every grain.

When you feed in the greater waters, where the numbers are alſo great, it will be a charge as well as trouble; but when you take out the fiſh, and ſee how they are thriven, you will allow both well employed. Either malt boiled, or freſh grains, is the beſt food in this caſe: and what is not ſupplied from your own houſe and brewings, you may take of neighbouring alehouſes, who will be willing, for a ſmall matter, to throw into the water, at a place you ſhall aſſign, a certain quantity every brewing. Thus carps may be fed and raiſed like capons. And tenches will feed in ſtews, as well as carps; but perch, as was ſaid, are not for a ſtew in feeding time.

There is a ſort of food for fiſh, which I may call accidental, and is no leſs improving, than the beſt you can contrive; and that is, when the waters happen to receive the waſh of commons where many ſheep are fed, the water is enriched by the earth, and ſhall feed many more carps, than otherwiſe it would. This is the caſe at Antlingham in Norfolk, where there are ponds in a common that raiſe carp wonderfully, although the ſoil be ſandy and poor, and the waters ſeldom let out; and this earthy waſh is the reaſon of it. When cattle are fed upon the paſtures by your great waters, if they have acceſs to them, in hot weather they will take delight to ſtand in the water; the dung that falls from them, is alſo a very great nouriſhment of fiſh.

It is believed, that about London the fiſhmongers have ways of making carps fat by the offal of butchers ſhops and ſlaughter-houſes; which I do not at all recommend to others, if that were to be done, becauſe a ſudden filthy feeding can neither be wholeſome nor ſweet. But I have not obſerved, that carps do in any ſort delight in blood, nor indeed any other fiſh, except breams; and thoſe will feed much upon new grains mixed with blood; ſo that if you will be at the charge of feeding them in ſtews, like carps, you may have large breams in ſix or ſeven years, which are a very ſlow grower, unleſs it be in ſpringy waters.

One way of feeding fiſh is worth remembering, though not fit to be uſed in waters that you ever look upon. It is laying a dead carrion upon ſtakes in the middle of the water, and it will breed maggots, which falling into the water, feed the fiſh very conſiderably; but I have not proved it.

As for pikes, the beſt food to raiſe them up to an extraordinary fatneſs is eels; and without them it is not to be done, but in a long time; otherwiſe ſmall perches are the beſt meat you can give them. And the common opinion, that pikes will not eat perches, becauſe of their armed backs, is a great miſtake, as I have found by certain experience. Breams put into a pike-pond, will breed exceedingly, and are good enough to maintain pikes, who will take care they ſhall not increaſe overmuch. And the great fry of roaches and rouds that come from the greater waters, removed into the quarters of your pikes, will be good diet for them.

Pikes in all waters, and carps in hungry ſpringy waters, being fed at certain times, will come up and take their meat almoſt from your hand; and it is diverting enough to ſee the greedineſs and ſtriving that will be amongſt them for the good bits, and the boldneſs, that by conſtant and regular feeding, they will come to.

Of diſpoſing your Increaſe of Fiſh.

THIS care preſſeth when you employ your great waters; and unleſs you have projected beforehand how you ſhall diſpoſe your fiſh, you will find yourſelf in great diſorder.

As for carps for the ſervice of your houſe, and alſo tenches and perch for winter, they are to be diſpoſed into your ſtews. The reſt of your fiſh, except the fry, you may put into the great water, and in March or April after, with flews or trammels, take out good quantities to recruit your winter's expence taken from your ſtews; the fry goes to your pikes, except carps, tench, and perch, which may go to ſome of your auxiliary waters to be raiſed, in order to become ſtores again when you want. And if, after all, you find your ſtock too high, you muſt feed as I have already diſcourſed.

But you may contrive to keep your ſtock within compaſs; for you may enlarge the expence in your houſe, and gratify your family and friends that viſit you, with a diſh as acceptable as any you can purchaſe for money; or you may oblige your friends and neighbours, by making preſents of them, which, from the countryman to the king, is well taken; for many that have waters, not being in a method of huſbanding them, as well as others that have none, want and deſire fiſh, and look upon ſuch a preſent, as of a rarity, valuing it not by your plenty, but their own ſcarcity. And where fiſh is plenty, it is a poſitive diſgrace to appear covetous of them, rather more than of veniſon, or any other thing; ſo that preſents are not only expedient, but neceſſary to be made by him that profeſſeth a maſtery of fiſh.

Another way, more prudent, though in the account of ſhallow people, leſs reputable, is that of ſelling. If there were any colour for diſreputation in that matter, I ſhould beſtow ſome words upon it; but ſeeing it reſides only among vain women, or women-like men, I let the humour paſs, and ſhould as ſoon preach againſt the opinion of fairies and Robin-Goodfellow, as that. Only by the way, I preſume to adviſe the cenſorious ſparks to do nothing unjuſt; let their dealing be plain, though in ſelling of horſes, ſpend what is their own, provide for their families, and be true to their friend; and after this, whether they ſell corn, cattle, conies, ſheep, deer, horſes, or fiſh, I will inſure their honour for a farthing. It is the truth and ſubſtance of things, and no perſon's opinion, that governs honour, which conſiſts wholly in doing what is truly juſt and good, and nothing otherwiſe.

This matter being diſmiſſed, I proceed to direct the courſe to be taken when you propoſe to ſell. Firſt contract with the perſon you deal with for a quantity; which, if for ſale to eat, will be by the meaſure of ſo much per inch, for every inch above a foot; if for ſtores, then ſo much per hundred, or dozen, between certain lengths, as between nine and twelve, and ſeven and ten inches, to be delivered alive where it is agreed.

This trade will be eaſy, if you are planted within forty miles of London, which will take off quantities for retailing, elſe it will be hard to find contractors; but for ſtores, there will be ſome always beginning in fiſh, with whom you may deal; and ſo few will ſedulouſly apply to the conduct of their waters, as is neceſſary to a command of fiſh, you need not fear the country will be overſtocked. If the humour of living in the country once repoſſeſſeth the gentleman, there may be much more occaſion for ſtores than at preſent there is, becauſe their ſeats are let to tenants, and the waters uncultivated.

When you have contracted, you are at a certainty, and may proceed; for it is a great inconvenience to take and carry fiſh, and then be paid with a wrangle; therefore let your terms be certain, and you can have no diſpute, becauſe all is to be declared by meaſure.

You will find your ſtews and auxiliary waters of great uſe to you upon ſuch occaſions; for you clap in what fiſh you pleaſe for fourteen or fifteen days; for inſtance, five or ſix hundred carps to a brace of ſtews, and they take no harm: if they continue longer, it is but feeding them until they are fetched or carried away.

Of fiſhing for Carriage.

As for the particular ways and methods of taking fiſh, ſuch as I have dealt in, is at preſent beſides my deſign, though I may not perhaps altogether paſs it by, ſo much as concerns the carriage of fiſh, which I look upon as a conſiderable item in the managery as to profit, which I principally aim at, I ſhall now obſerve.

When your fiſhing is in order to remove far, whether the waters are great or ſmall, it muſt be done in winter, between the firſt of October, and the laſt of March; and the colder the weather is, the better. One great caution is, not to handle, or any way to batter or bruiſe them; for it is a great truth, and common ſenſe ſpeaks it, that fiſh battered and bruiſed, will not thrive upon tranſplanting, ſo well as others; therefore when your pond is drawn, and you come to the fiſh, take them out of the water with hoop-nets fixed upon ſtaves about ten feet long, and ten or twelve fiſh at a time in a net is ſufficient, though but a foot long; more, by their weight and ſtruggling, will damage each other inſenſibly, ſo as to hinder their growth and thrift, and perhaps be the cauſe that many die. Let the fiſh be as little out of the water as may be; for when fouled, and almoſt choaked with mud, they will clean and recover themſelves with water, which freſhen upon them often, till you come to put them up for carriage.

If you fiſh with nets, and make a great draught, as probably you will when the water is low, be not haſty to draw the fiſh upon the ground, but ſecure them by taking the lead line upon the ground, and holding up the cork line, and ſo let them ſtir a little, they will be the cleaner; and then take them out with hoop-nets, as before. And if there be occaſion to keep them any time out of the water, let it be upon the graſs, when there is no ſun, or elſe in the ſhade, for heat is the greateſt enemy to the life of fiſh out of water that can be.

The beſt veſſel for conveyance (if you carry above twenty miles) is a great tun that holds five hogſheads; but if no more than ten, fifteen, or twenty miles, ordinary hogſheads will do well enough. I know by experience you may ſafely carry three hundred carps, ſix and ſeven inches long, in one hogſhead; but from ſeven to a foot, not ſo many by a fourth part. If they exceed a foot, then not above ſeventy or eighty in a hogſhead. Let every hogſhead have ten or twelve pails of freſh clean water (not well-water), every ſix or ſeven miles, if it may be had. There is no need of any great liberty for the fiſh, if their water be freſh, and often renewed; for one great uſe of the water is to bury the fiſh, that with mere weight they might not cruſh and deſtroy one another.

When you are arrived at the place of diſcharge, pour the fiſh into an hoop-net a few at a time, and diſpoſe them forthwith where they are deſigned; and with this care you will ſcarce loſe a fiſh.

Some uſe to put up fiſh in baſkets or hampers for carriage, ſtowing them with graſs between; but this is not ſo good as water, for the graſs cleaving to the ſlime of the fiſh, rubs and cleans it from the ſcales; which done, a carp ſcarce ever thrives after. And although perhaps the fiſh may live, they will not grow or thrive, becauſe their natural ſlime, ſcarce recoverable, is rubbed off; and for the ſame reaſon, it is not good to let carps lie at all in graſs, but keep them always in water, to preſerve them from bruiſes, and loſing their ſlime.

Of Nurſeries to Ponds and Fiſh.

GENERALLY ſpeaking, the freſher air and cleaner ſoil your water hath, the better fiſh thrive. Wood of any ſort near the water is bad, not only from its hindering the wind and ſun from purifying the water, but from the leaves falling in, and rotten wood; both which are pernicious to fiſh. But oſiers and willows may be allowed of, without much inconvenience. Oak boards, or timber laid in water, as ſometimes is done to ſeaſon, will in all probability deſtroy all your fiſh; and likewiſe hemp laid to rot; all which are therefore to be avoided. Dung-hills, ſtables, or cow-houſes, permitted to drain into ponds, are very ill neighbours, and moſt eſpecially waſh-houſes, which certainly ſpoil a ſtanding water.

Of Froſts, and the Ways to ſave the Fiſh in them.

THE great plague and bane of fiſh in moats, great and ſmall, and other little ſtanding waters, are great and ſharp froſts. I have uſed all the tricks that I have heard of, which are not a few, or could deviſe, to ſave my fiſh in ſuch waters;

and yet in ten years time I have loſt three or four thouſand carps. But yet I have found ways to ſave the life of many a fair carp, when my neighbours have loſt all; which I ſhall declare as my own experience, and may be profitable upon like occaſions to any that will uſe them.

Firſt, as to the ſorts of fiſh that ſuffer moſt, I can only ſay, that the tench, if any, is froſt-proof, and will ſhift in extremity; but if the froſt be intenſe and long, the other ſorts, as carps, eels, pike, perch, and roach, will go near to periſh; and I have found not any great difference of hardneſs, but when one fiſh complains, they are all in imminent danger.

The waters moſt obnoxious to froſts are ſuch as are ſtanding, ſhallow, or ſmall. For if there be either a water-current, or a freſh ſpring, no fiſh dies for froſt. If an hard winter ſucceeds a very dry ſummer, the fiſh ſuffers moſt. If the ponds are large and deep, ſuch as I have directed to be made upon the channel of water, which may not run but upon floods or rain, the fiſh will never die in froſt there; but ſuch waters you muſt look upon as the aſylum for the ſecuring the fiſh in extremity; and all that you can put in there alive, though through a hole in the ice, will certainly live. If the bank of a pond ſews, it will preſerve the fiſh in froſt; the reaſon, as I imagine, is, becauſe where the water ſews out, the air will bubble in, which relieves the fiſh; or perhaps it might put the water into ſome degree of motion. If ſo, the ſtirring water with a board flat upon a pole put under the ice, might do good; but this is conjecture.

The ſymptom of mortality to your fiſh in time of froſt, is, their ſhewing themſelves; which if you perceive in the leaſt, conclude all are going; and without a thaw, that water will not keep them alive. For it is the nature of fiſh in cold weather to lie as cloſe and deep as they can; ſo that nothing but the pangs of death ſhall make them move. If no holes are broke, they will riſe and ſtick to the ice, and be frozen to it; if there be holes, they will move about them, as if they came up for freſh air.

When the froſt hath continued long, and hard, that you begin to ſuſpect your fiſh, you may make a trial by cutting holes in ſeveral places, ſome in the middle, and ſome by the ſides of the waters that are obnoxious; that is, after about ten days freezing; and by the appearing of the fiſh, or not, you ſhall diſcover the temper and condition they are in; therefore watch them diligently. If they are not well, they will appear; then prepare all hands to take out every fiſh, as near as you can; for what you take out, you may preſerve, and all that are left behind, are probably loſt.

Many uſe to break holes to relieve the fiſh, and, as they think, give them freſh air; ſome have put dung bound up together into the holes, as if the warmth of that keeping the hole open would preſerve the fiſh; but theſe ways, and all others that I have heard of, except taking out the fiſh, are mere vanities. I have cut many holes, and large ones, and employed men to take out the ice, and keep them open, but to no advantage. One thing appeared very oddly to me, when I took that courſe. Many of the fiſh in a large moat had gathered together in a corner obverted to the South, where the ground roſe under an high bank, to a ſhoal-water. Theſe fiſh, by their motion and heat, together with the ſun's heat, that was ſtrongeſt there, kept the water from freezing, and I could plainly ſee every fiſh, great and ſmall. There were carp, pike, perch, eels, and fry in abundance, collected as if it had been a general counſel of all the orders of fiſh, met to conſider what was to be done in that extremity, very diverting to obſerve.

But to leave conceits, and come to the only expedient which I have found effectual to ſave the fiſh in this caſe; and that is, to ſet great tubs or fats full of water in ſome outhouſe, not far from a fire; and as faſt as the fiſh appear, take them out, and put them there; and from thence you may convey them in a baſket to your great waters, where you may make an hole at about eight feet deep, and putting the fiſh in, preſerve them; or if you pleaſe, you may keep them there, freſhening the water every twelve hours, until the froſt breaks, and put them into their own houſes again. You may plainly perceive how the fiſh, though ſtunned and numb with the froſt, coming into the fat, will by degrees recover, and be perfectly well again; and thus you may keep them five weeks, or longer, if the froſt continues.

I have gone farther: ſometimes fiſh have been to all appearance dead, others frozen and inveloped in ice, yet by this method I have preſerved them; for heating water, and putting it into the fat, until I brought the water there to a Midſummer heat, and then I have put ſuch fiſh in, with their ſhell of ice upon them, and in ſix or ſeven hours the ice was gone, and the fiſh alive and well; and ſo I have delivered them to my great waters, briſk as any.

This may ſeem ſtrange, but it is moſt true, and to be atteſted, if need were; therefore in froſt uſe this and no other means, for all elſe will prove but labour in vain.

In ſmall waters, where is the greateſt danger of froſt, obſerve never to put in ſtock, but the laſt week of February, or beginning of March; for then they take leſs hurt in removing, and they may be taken out in October after, and ſo all hazard of froſt prevented; and if you venture them there one winter, be ſure never let them run the hazard of another. So you have two ſummers feed, which will raiſe a carp from ſtore to the table, and venture but one winter's froſt; and in winter they neither feed nor grow any thing conſiderable.

Of the ordinary Benefits and Improvements by Fiſh.

THESE were touched when I ſpoke of diſpoſing the increaſe of fiſh; that is, furniſhing your table, obliging your friends, and raiſing money. I ſhall only add to the laſt, that it is moſt reaſonable, if it can be contrived, that pleaſures pay for the charge of them. Then what is more juſtifiable, than to make ponds yield a profit to anſwer the great charge in making them?

But we muſt go farther: ground ſhall be vaſtly improved by fiſh, and ſhall be intrinſically worth, and yield more this way, than by any other employment you can give it: for ſuppoſe it meadow of two pounds per acre (which is an high value for the beſt meadow far from London), I will juſtify, that four acres in pond ſhall return you every year one thouſand carps fed up, from — to fourteen or fifteen inches, beſides pikes, perch, and tench, and other fry, uſeful on many accounts, if the water ſuits them. The carps are ſaleable, and will bring perhaps twelve pence, but in all likelihood not leſs than nine pence; yet, let it be ſix pence apiece, there is twenty-five pounds, which is ſix pounds five ſhillings per acre; a little charge of carriage perhaps to be deducted. This is improvement enough.

But lay aſide profit, and conſider how a gentleman ſhould entertain himſelf and his family, which I muſt ſuppoſe every one hath, who lives upon an eſtate, and it may be numerous; he muſt find ſome ſort of diverſion for them. Muſt it be altogether going abroad to make, or at home receiving viſits? Or if the female part are ſo grave, to decline that courſe of life, muſt they always be within? Or if they ſtir out, have nothing but mere air to invite them? Perhaps the gentleman himſelf may find diverſion by hunting, &c. and meeting company upon ſeveral diverting accounts; and ſhall all his entertainments be excluſive of his family? No, certainly; whoever aims at an eaſy and ſatisfactory courſe of life, muſt ſeek that his family, as well as himſelf, be pleaſed: and if he doth not order it ſo that they ſhall be entertained, it is ten to one they will find ſuch entertainments as ſhall not be very grateful to him; therefore there is advantage enough in the maſtery of fiſh, from the diverſion, not to ſpeak of the employment that it brings to a family. Young people love angling extremely; then there is a boat, which gives pleaſure enough in ſummer, frequent fiſhing with nets, the very making of nets, ſeeing the waters, much diſcourſe of them, and the fiſh, eſpecially upon your great ſweeps, and the ſtrange ſurprizes that will happen in numbers and bigneſs, with many other incident entertainments, are the reſult of waters, and direct the minds of a numerous family to terminate in ſomething not inconvenient, and, it may be, divert them from worſe. Parks, bowling-greens, and billiard-tables, are of the ſame deſign; but it will be eaſily granted, this of fiſh is beyond them all.

If it be ſaid, that this is not a pleaſure, it is all care and pains, eſpecially to him that is the maſter, who muſt be perpetually vexed at the negligence and blockiſhneſs of ſervants, that will never perform what he expects and orders: I anſwer, that is a good reaſon for leaving the world. The plague of ſervants is the ſame in all buſineſs, wherein you uſe and depend upon them; therefore, to be rid of it, give away your eſtate, retire, and be an hermit: and even then you ſhall find the gnawing of your own mind a more perverſe evil, than all the buſineſs, ſervants, with the croſſes and vexations attending them. We were not made perfect, but muſt live in perpetual diſeaſe; the only point is, which way to leſſen it; and that muſt be by employment, which diverts the ſenſe of our innate miſery. What can be a greater torture, than to live chained to a bed, though the beſt in the world, and have no company nor buſineſs? Therefore court buſineſs, if you would paſs for an epicurean, and let it be ſuch as brings comfort to nature, and not pain and torment in the conſequence; that is to ſay, lawful, profitable, obliging, and temperate. So you avoid offending the publick, increaſe your ſtore, win your friends and family, and preſerve your health; all which, I take it, are accompliſhed, in great meaſure, by the maſtery of fiſh.

Now, as to the vending of fiſh, obſerve that it is beſt to be content with the market price, as you can find it, as moſt are for other vendible commodities; and for carps between thirteen or fourteen, or ſixteen inches, meaſuring from noſe-end to tail-end, twelve pence is a good price; ſelling to the nobility or gentry, may produce one penny more, and may meaſure up to ſeventeen; but never promiſe above twenty turned of ſixteen in twelve ſcore.

Of Benefits, beſides the main Deſign.

THESE are many, and not inconſiderable: as firſt, when you make a great water, you take the firſt ſpit of the ground upon which the bank is to ſtand, and from the pan of the pond. In caſe you take earth there for the bank, and this you carry to ſome place where it is moſt eaſily removed upon your tillage-ground, and there let it lie to rot the ſod, and then there is not a better manure, and more than pays the charge of digging and carrying it.

2. You gain the making of ſtews, and, it may be, other ponds for the convenience of your cattle, all under one charge: for if you muſt dig clay and earth for your bank, it is as eaſily taken where it doth this, as otherwiſe.

3. If the ſoil about the waters be any thing mooriſh, it may be planted with oſiers, which yield a certain yearly crop.

4. The feed of the pond when laid dry, or the corn, that is, oats, which you may have upon the bottom, though mere mud, is very conſiderable. This hath been touched before.

5. You will invite all manner of help to your fiſhing, by the fry given among thoſe who aſſiſt you; and though you pay them, they will expect fiſh; and with expectations of carrying home a diſh of freſh fiſh, men will work in wet and dirt, to a wonder, without other pay.

6. If you graze cattle near your great waters, they will delight to come and ſtand in the water; and it conduceth much to the thrift of your cattle, as well as the feed of your fiſh, which is much ſupplied by the dunging of the cattle; and therefore it is good to have ponds in cow-paſtures and grazing grounds.

As to the ſowing of oats in the bottom of a pond, obſerve to dry your great water once in three, or at moſt four years, and that at the end of January, or beginning of March; which, if not a very unreaſonable year, will be time enough. After Michaelmas following, you may put in a very great ſtock; and thin them in following years, as the feed will decline.

The Concluſion.

THUS I have given, as ſhort and intelligibly as conveniently I could, the beſt of my knowledge, contracted by twenty years practice and experience, of fiſh and waters: and if I am ſo happy thereby, to contribute in the leaſt to the ſatisfaction or diverſion of my friends, it will extremely content, if not encourage me to add ſomewhat farther concerning the nature of the ſeveral ſorts of fiſh I deal in, the ways of taking them, of nets, angling, engines for clearing waters, and other particularities that I have proved. In the mean time, they may command theſe as myſelf, both being alike open, conſiderable, and at their ſervice.

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